PATHOLOGIA INDICA,

OR THE

ANATOMY OF INDIAN DISEASES,

BASED UPON

MORBID SPECIMENS, FROM ALL PARTS OF THE INDIAN EMPIRE IN THE MUSEUM OF THE CALCUTTA MEDICAL COLLEGE:

ILLUSTRATED BY DETAILED CASES;

WITH

The Prescriptions and Treatment Employed,

AND

COMMENTS, PHYSIOLOGICAL, HISTORICAL, AND PRACTICAL.

BY

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SECOND EDITION.

IN TWO PARTS.

> "Vere scire est per causas scire."
>
> LORD BACON.

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TO

THE RIGHT REVEREND DANIEL WILSON,

Lord Bishop of Calcutta,

AND

METROPOLITAN OF INDIA.

My Lord,

Admiration of your character, and gratitude for personal benefits, the memory of which will never be effaced from my mind, are the motives which prompted my seeking the permission, which has been so kindly granted, to dedicate this volume to your Lordship.

For seven years a companion of your journeyings in every part of this vast Empire, I have enjoyed innumerable opportunities of witnessing the deep interest with which your Lordship regards any measure, connected more immediately or not with your own high and sacred duties, which has the good of India and her millions of inhabitants for its object.

It therefore gives me the highest gratification to be permitted to connect your Lordship's name with a Work, the leading design of which is the Alleviation of Human Suffering among our fellow-creatures in this country.

Should I succeed in my object, none will rejoice more than your Lordship; should I fail, none will appreciate with more indulgence the good intentions of the author.

With the highest respect and esteem,

I am,

Your Lordship's devoted servant,

ALLAN WEBB.

Calcutta, 1*st July*, 1848.

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THE KIDNEY AND URINARY ORGANS.

PRELIMINARY OBSERVATIONS.

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URINE.

Practical consideration,.... diseased secretion,.... acrid depraved quality,.... leads to ulceration, to calculous deposits, &c.,.... cholera, ... suppressing this secretion,.... blood becomes poisoned,.... typhoid symptoms, death,.... a woman died of cholera M. J. T. Simon found,.... crystals of pure urea,.... Dr. Robert Willis urea, effused after scarlatina, ... blood drained of its albumen, (or fibrine), ... permeate vessels infiltrate tissue,.... presence of ammonia, when secretion is retained,.... converting fibrine into mucus, preventing repair of tissues,.... congestive typhoid fevers,.... solution of the red particles (Williams),.... odour of the patient,.... ammonia escaping,.... solution of the blood,.... every leech-bite,.... break

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out and bleed afresh,.... young officer sent upon the river,.... fresh sea breezes, stopped this desperate oozing,.... (Note) Dr. Reid, the exciting cause of respiratory movements. Dr. Volkmann.... respiratory motion,.... its impulse,.... the need of respiration arises from relations of nutrition, of the whole body,.... blood surcharged with carbonic acid cannot satisfy this need,.... organ's, want of breath,.... (besoin de respirer,) continues after section of the pneumogastric nerves,.. 241

Blood ebbing or flowing obedient only to gravitation,.... albuminous urine,.... M. Donné,.... organised matters which are got rid of by the urine, sediments, 1, filaments of epithelial scales, 2, mucous deposit, 3, purulent matter, 4, blood, 5, spermatic fluid, 6, fatty matter, 7, chylous urine, fever terminates by unusual deposits in the urine, especially pus, ... 242

Abscesses disappearing from the liver, simultaneously with appearance of purulent deposits in the urine. Dr. Mouat's cases,.... omitting observation upon the urine, our clinical reports are defective.... observations cited by Bartholini,.... pestilential fever of 1574,.... clinical reports of Hippocrates himself, models for imitation,.... (Note) Dr. Golding Bird on the true pus particle,...a woman, tumour had completely disappeared during the night,.... the urine turbid and sedimentous,.... analysed, found pus,.... Hippocrates on urine in fever,.... Æger sextus,.. 243

Observing all the secretions, philosophical and safe,.... calculous diathesis,.... (Note) Æger decimus,.... another fever case,.... Philistidem Heraclidæ conjugem,.... treatise of Actuarius de judiciis urinarum,.. 244

Liebig says the functions of the lungs or skin disturbed,.... compounds rich in carbon appear in the urine, ... mulberry, calculi occur, in sedentary persons from want of oxygen,.... depraved urine, produces ulceration of the organs,.... gives rise to calculi,.... it was thought that calculous disease unknown in India,.... 300 specimens collected from every part of India, ... inflammation and its effects,.... gonorrhœal inflammation,.... in the male spreads to the cords and testicles,.... the female to vagina, uterus, Fallopian tubes,.... causes sterility,.... propagated to the peritoneum, fatal, 245

Dr. Green's case, irritation of the kidneys and bladder, following scirrous prostate,.... dysenteric congestion and inflammation,.... almost to perforation of the canal,.... (Note) 1,700 years ago, by Rufus,.... de inflammatione vesicæ, ... 246

Calculi in the kidneys and bladder,.... difficulty of diagnosis,.... nature prevents effusion into the abdomen, bowels inactive whilst adhesion is going on, ... largest stone passing through the ureter, ... ureter enormously hypertrophied to pass it safely,.... almost effected,.... location of calculi, methods applicable for their removal, ... (Note) history of Bartholinus,.... Tulpius,.. 247

Kidney from which the calculus escaped.... fibrous coat—prevented its escape into the abdomen,.... mortification and death, from a stone arrested in the urethra,.... (Note) multiple calculi,.... Tulpius observes,—Ecquid egisses Lithotome in hisce syrtibus?.... spontaneous escape of renal calculi, through the loins,.... nephrotomy .... first case,—Riverius reported by A. D. Ozia Aimar, (Abcessum lumborum ad renes penetrans,) 218

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They may find their way by ulceration into the bowels,.... very large ones forced through the short straight urethra of women, Nephrotomy,.... Albucasis, the hardier operator of all,.... catalogue of his operations,.... a stone of the kidney extracted by cutting through the muscles of the back,.... Serapion and Avicenna say it was practised, Surgeons ventured to undertake it, patients to undergo it,.... Bernard.... case of Consul Hobson,.... a stone cut out of his kidney by Dominico Marchetti at Padua,.... Rouset, ... (Note) Observationes Communicatæ of Riverius, ... cases by Rufus,.... the passage per anum of numerous calculi.... by the mouth,.... whole history points to the kidney,.... calculus as large as a hen's egg passed by a woman, figured by Bartholinus, ... 249

Nephrotomy performed,.... Archer of Bagnolet,.... succeeded 1498, nephrotomy, should according to M. Rayer, be practised,.... M. Rayer refers to numerous cases of indubitable success on record, .. 250

Exploring needle thrust into the kidney, which striking against the calculus would indicate its position,.. Prosper Alpinus his "Medicina Egyptorum," (Note) method practised in Egypt for extracting stone,.. 251

Puncture through the pubis, evacuating the bladder, Dr. Brander's case,.... puncture above the pubis, its advantage over other forms of opening the bladder,.... table—by M. Mondiere,.. 252

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Mysterious faculty possessed by all animals of generation,.... vegetables also,.... reproduction in man closely connected with volition, ... one of the earliest forms of idolatry, worship of the power of generation the creature for the creator,.... millions of worshippers throughout India, Malabar, Rajpootana Elephanta, Ellora,.... Kylas dedicated to creative energy, covered with friezes of disgusting obscenity,.... notes I made while travelling through Central India,.... the lingam,.... honored place,.... meaning of this emblem, ... original and simple worship is the lingam, emblematical of the power of reproduction,.... attracted early reverence,.. .. 254

Mud-formed emblem in the streets of Poona,.... (Note) after carefully examining all these cave-temples I feel convinced original worship was the lingam,.... small cave-temples,.... Col. Sykes—Luximee—the Mylitta of the Babylonians, the Isis of the Egyptains, the Cybele or Tellus of the Phrygians and Greeks, Magna Mater of the Romans,.... priority of Budhist to Braminical worship, .. 255

The stately pillar of Chetore,.... fair without, within filled by images of lascivious indecency,.... the universality of this worship throughout the land,.... not irrelevant,.... pathology of the female organs of generation in this country,.... serious lesions from vicious institutions, or practices connected with idolatry, fatal to chastity, purity of mind,.... of generation, mind and moral feelings of man, ... feelings morally depraved,.... generative faculty impaired or destroyed,.... women,.... (Note) Prof. H. H. Wilson says Linga Puráná, not itself indecent,.... actual immorality attending the worship,.... Sreenugger, Muttra, Benares, Allahabad,.... obscene representations upon the temples themselves,.... most ancient, as

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Adjuntah indecency, not observed,— . . . the Phallic orgies of antiquity,. . . . impurity cannot exist with impunity,. . . . Avicenna, a vizier physician, . . . agritudo corú est mentalis, non naturalis, 256

Perversion from the reproduction to the destruction of the tender fruit,. . . . Aristotle,. . . . female organs,. . . . reproduction, the end, ... motive cause is male, ... physiologists in England,. . . . Harvey, Hunter, Home, and Barry,. . . . process of generation, reducible to the ordinary principles which govern nutrition,. . . . cell-germs not developed within cell that produced them,. . . . conveyed into others,. . . . nourishment prepared for them by a different set of organs, which belong in animals to a different being,. . . . subject of embryology,. . . . (Note) common effects of female prostitution, Sterility,. . . . consequent upon repeated abortions, or upon gonorrhœa,. . . . effects of more secret depravity,. . . . Boston Medical Journal,. . . . India Journal of Medical and Physical Science,. . . . Morgagni,. . . . Italian country girls. . . . . horrors Tissot related, ... M. Deslandes de la Onanisme,. 257

Influence the stars exert,. . . . Albertus Magnus,. . . . secretis mulierum, ... Michael Scott,. . . . charms for producing conception,. . . . less occult charms,. . . . fascination,. . . . wisdom of the Egyptians,. . . . Plato,. . . . Androgynous yearning,. . . . belief in astrology, among the Hindoos,. . . . (Note) Albumasar,. . . . (Medicus elementorum, operam dat. Astrologus stellarum motus sequitur,). . . . Hindoo preventitives of conception,. . . . naturalis enim fascinandi vis virum, ad mulieris formam 258

A specific duty to each particular star :—Mars, Sol, Venus, Mercury, ... office which Plato attributed to them,. . . . birth of an infant, ... horoscope cast by Brahmins,. . . . As if the planet's first aspect, the tender infant did infect,. . . . profess to effect conception by spells,. . . . to prevent conception,. . . . Juvenal,. . Indian pathology,. . upon an ancient theory respecting generation, early marriages instituted in India,. . . . if an unmarried girl has the menstrual secretion in her father's house, he incurs a guilt equal to the destruction of the fœtus ;. . . . the doctrine of Pythagoras. . theory of the ovists, materiel of the new ovum, formed by the female,—loss of the fœtus,. . . . a doctrine professing regard for generative germ led to destruction of the fœtus,. . . . to escape this children are married at tender age,. . . . subjected to sexual intercourse,. . . . fatal to them,. . . . Hindoo girl, one of the hundred wives of a Koolin Bramin,. . . . never released at his death,. . . . thousands of women living in hopeless celibacy,. . . . subversive of chastity,. . . . no other safeguard than the dread consequences of losing caste,. . . . (Note) abortion, to preserve caste,. . . . ten times,. 259

A fearful amount of crime,. . . . no country on earth immolated infants as India,. . . . abominable art of murdering children in the womb of the mother, too openly practised even now,. . . . Government, ... cleansed the land of child-murder, ...not yet reached this secret practice of fœticide. . . . death of mother. . . . hopeless sterility, ... climate . . . . apology for these early marriages, ... monster evils of the country,. . . . not common for girls in India to menstruate until after the 12th year,. . . . writers in Europe before the 15th century, Michaelus Scotus . . . . Albertus Magnus. . . . speak of

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Lycurgus,.... Spartan children might be strong,.... age for men was thirty, and for women twenty,.... Aristotle thought thirty-seven a good age, Plato, thirty,.... Athenian laws,.... (Note) opinions of Mr. Roberton,.... Platon en assignant,.... à la femme la vingtième jusqu'á la quarantième annèe, il veut que tout enfant procrèè par des personnes audessus, de cet âge soit noté d'infamie. Tacite rapporte que les jeunes Germains ne connaissaient pas l'amour précoce,.... M. Marc, ... chez l'espèce humaine,.... partout où l'on admet les mariages précoces, remarque des hommes petits et chétifs,.... M. de la Fontaine,.... attribue aux unions prématurées des juifs Polonais, l'extrême dèbilité physique que l'on remarque en eux et leur progéniture. Giovanni Botero,.... aux marriages un peu tardifs, la beauté du sang, à Raguse et Gravosa, ... 262

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Reason why the acorn shall produce an oak and not potato,.... why the result of sexual intercourse an infant with exceeding beauty, child-like capacity,.... a transition state to nobler dignity, ... and that wisely used to one more excellent, ... was taught by Plato, Kapila, Gautama,.... the generation of man is effected by the impregnation of an ovum in the ovary,.... the male and female each furnish semen which, mixed and coagulated in the womb, produce offspring maintained by the Hindoos as Susruta,.... Greeks from Hippocrates to Galen Arabian writers as Avicenna earliest schools of Europe,.... verses quoted from Ægidius (Romanus),.... same simile in Hippocrates, and Aristotle, ... (Job x. 10, 11, 12), B. C. 1550, ... 264

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The coction taking place in the womb,.... do we know that the male germ enters the female germ?.... fœtus produced in the ovary,.... chain of evidence is complete, ... vivification, ... Aristotle says semen cannot contain the divine life, which comes from without, ... the anima may be united with the sperm to form a new being, or may pass off without generating at all,.... Sushruta says, they effervesce or froth, and then it is called garbha (genitura), then the soul enters it, ... 265

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1569. *Uterine system at period of menstruation, from a young Hindoo woman—died of cholera; presented by Tameez Khan.*

The uterine arteries are extremely tortuous in their course, and considerably augmented in calibre, so much so that the common coarse injection used in our dissecting room has filled the vessels to their ultimate ramifications. The uterine vessels are beautifully seen to supply the cervix uteri and vagina. The broad ligaments are almost filled with a net-work of minute arteries. The vessels supplying the ovaries are also singularly tortuous and their terminations about the fimbriated extremities of Fallopian tube is exquisitely beautiful. The ovarium on the left side was observed to have a slit on its serous surface (observed by Professor Webb) and a transverse section being made of the ovarium showed a dark spot about the size of a ¼ rupee, its edges wrinkled, filled with coagulated blood, and which denotes the escape of the ovum and the formation of corpus luteum.

1477. *Shows the hymen in an infant (Native.)*
1027. *Carcinomatous deposition in the uterus and ovaries (Native.)*
1025. *Uterus and vagina of a native female who died of uterine hemorrhage—uterine surface covered with effused lymph and the os uteri injured.*
1356. *Sloughing of the neck of the womb.*
1490. *Uterus near the full term opened to show its internal surface.*
1604. *Sloughing of the uterus and vagina at the full term.*

* Added lately.

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1603. *Fœtus of the full term in utero shows the position of the placenta.*

1055. *Development of the fœtal organs in a fœtus of about four months. See* SECTION LIVER.

1635. *Fœtus of about five months.*

1646. *Development of the fœtal organs at about six months. See* SECTION LIVER.

1568. *Malignant tumor filling the vagina, uterus and pelvis, in a Native woman.*

934. *Large fibrous tumor filling the whole of the uterus as large as the adult head—intimately united to the uterine walls (a Native).*

2009. *Inversion of the womb, the womb about the size of the fœtal head (a Native).*

1550. *Uterus—its appendages and neighbouring intestines covered with lymph from puerperal peritonitis (a Native).*

1999. *Sloughing uterus (a Native).*

1490. *Uterus about at six months of gestation (a Native).*

FATAL RESULTS OF CRIMINAL ABORTION IN NATIVES.

1491. *Uterus recovering from the parturient state.*

1494. *Uterus covered with layers of lymph,—a lal chittra stick in the interior, showing that criminal abortion had given rise to the inflammation of which she died.*

2004. *Uterus and appendages, from a native woman, presented by Professor Webb showing the disastrous effects resulting from criminal abortion* about the 3rd month. The fundus and posterior part of the uterus covered with coagulable lymph, *the Fallopian tubes are dilated to the size of the fingers of a glove, convoluted like a ram's horn, they were full of pus, adherent to the uterus, their fimbriated extremities obliterated,* intimately adherent to the ovaries, highly vascular. Both ovaries enlarged, one havinga cavity as large as a small sparrow egg, filled with a bloody looking clot. The left ovary has a similar clot enclosed in a cyst or membrane, and a larger empty cyst without any clot: the bladder is thickened and inflamed, the rectum ulcerated near the anus, and there is a fistulous opening in the lower part of the vagina, at the spot where the stick commonly used in abortion, rests.

Remarks.

From this description it is evident that if the death of the woman had not occurred, she could not again have become pregnant, owing to the obliteration of the fimbriated extremities of the tubes; it seems probable that the granular bloody matter, found in the sac in each ovarium, is the consequence of a new ova endeavouring to escape at the menstrual period, but prevented by the obliteration of the fimbriated opening, and the swelling and induration of the ovarium is also a result.

It thus appears that the healthy function of the ovarium is stopped and disease commences. This is perhaps better seen in the specimen, 1644.

1644. *The Uterus and Appendages involved in extensive* peritoneal inflammation, apparently *the result of criminal abortion.* The mouth of the womb lacerated and injured, the vagina lacerated, the

Nos. *Prepn.*

cavity of the uterus still lined with decidua, *the Fallopian tubes and fimbria obliterated, the right ovarium equally enlarged,* filled with granulated bloody-looking clot, confined in a cell-envelope, about the size of a pigeon's egg, this subdivided into two cells. Intestines highly inflamed, covered with lymph both inside and out.

1319. *Uterus and Appendages, covered externally by layers of lymph, most abundant over the Fallopian tubes,* the uterus bearing marks of recent impregnation. From a native woman, supposed to have died from criminal abortion.

1699. *Uterus pierced at its fundus,* by some sharp instrument, *a fœtus* of about 3 months has a half escaped from the opening, *half the body projecting through the wound.*

1394. *Uterus and Appendages shewing a further extension of the changes seen in* No. 1569,—*and probably* from the same cause *(abortion)* upon the *right side, the Fallopian tube is dilated to the size of the small intestine,* and the *ovary partially destroyed,* the upper or uterine extremity of the *Fallopian tubes is obliterated.* On the left side the *Fallopian tube is shrivelled,* and obliterated at its upper part, and the ovary obliterated or nearly so, the middle part of *the tube is dilated to a cyst that would contain a small orange, united by adhesion to the top of the fundus uteri.* The interior of the uterus is taken up by a mole lined by a sort of deciduous membrane. The *Rectum is perforated.*

2072. *This is a very recent and incipient stage of the organic changes in the Fallopian tubes and ovaries from criminal abortion. The womb tubes and ovaries covered with effused lymph, the tubes distended with pus;* stricture of the tubes, one obliterated at one point, fimbriated extremities open. Pus and lymph effused in the womb, *the ovarial structure indurated; presented by Professor Webb.*

2068. *A fœtus of about two months, (criminal abortion); presented by Dr. Seal.*

2063. *Fœtus* 4 *months, (abortion;) Dr. Seal.*

2041. *Fœtus about* 5 *months, woman murdered; presented by Dr. Palmer, Jessore.*

END OF PART II.

PREFACE TO SECOND EDITION.

Since the publication of the first edition of this work, great progress has been made in carrying out the orders of Government constituting the Museum A CENTRAL DEPÔT FOR PATHOLOGICAL CONTRIBUTIONS FROM EVERY PART OF THE INDIAN EMPIRE. The recommendatory invitations both of the Council of Education, and of the Medical Board of Bengal, and the orders of the Supreme Government, with the facilities afforded for the transport and preservation of specimens, have produced the gratifying result of increasing our museum until it now numbers upwards of 2000 preparations. From the west and from the east, from Aden, and from Singapore, from Moulmain and Lahore, and from the southern confines of the Madras Presidency to the Hymalayan range, preparations and cases are now forwarded to the museum of the Bengal Medical College. It is gratifying also to see the zeal and intelligence of the students themselves actively engaged in forwarding this object; in the printed returns to Government of morbid preparations added during last year, they are seen to be large contributors. Since the dissecting rooms of the College were placed under my charge, I have encouraged this zealous co-operation of students—and very many of the descriptions embodied in this work, are from my exposition of parts in the dissecting rooms, recollected and written down by the students who sent the specimens. They who have passed as graduates of the College, and the Military students also, have been among the contributors. So that our own *elèves* in all parts of the country may be expected to aid in the work. *The museum and its objects are now understood.*

The favorable notice in the London reviews of such portions of the 1st Edition as found their way to Europe caused many applications for this work which I could not meet, having made over the whole of the first Edition to the Council of Education of India. The second Edition was originally designed only as a duplicate of the first; intended to meet the calls for this work both in Europe and this country. But the measures adopted by the Government and the authorities here had so greatly increased the morbid specimens in the three years that have since intervened, that I could not refrain from enlarging and adapting the work more completely, to what appeared to me to have become essential to its usefulness. The odd way of paging it, is thus explained—the pages marked with stars being additional matter.

This long apology argues that I have entertained some dread of this being imputed to mere pedantic ostentation, although, in very truth it originated in the fact, that, out of Calcutta, I never saw a *Medical* Library, in all my travels; and also in my perfect knowledge that my brother-officers had not these huge folios of the XIV. and XV. centuries to refer to, nor should I myself, but for the kindness of my kind old friend Dr. ALOYS SPRENGER, who will see with pleasure, that not idly have I kept his magnificent folios,—his friends HALI ABBAS, ABENZOAR, RHAZES and AVICENNA, nor his superb editions of GALEN, and his Greek followers.

My original plan contemplated the completion of this part of the work upon MEDICAL PATHOLOGY in 600 pages. Here are however, more than 600 pages, and yet very important subjects are untouched. One of these, the *Pathology of Nutrition,* I intended to preface with that of *Generation* as leading to a direct consideration of cellular development, both healthy and diseased. THE PATHOLOGY OF GENERATION is however left incomplete. THE PATHOLOGY OF DIGESTION is not begun. To do this to my own satisfaction, and with any hope of adding usefully to what may be already known, and to the abundance that has been published respecting diseases of the stomach and bowels, &c. in this country, requires a series of careful *microscopical observations upon diseased secretions.* Such a series of observations would throw some light upon these exceedingly common diseases of hypertrophy of cellular tissue, &c.—in form of elephantoid legs, and other members, which fill our hospitals with candidates for the knife.

Those horrible maladies, leprosy and *berri-berri* will, I am persuaded, be most successfully investigated in the same way. In this design I have the hope of most valuable co-operation from others who have already made much greater advances in such researches than I can pretend to, and who have promised to undertake a series of observations with this object in view.

As respects the PATHOLOGY OF THE NERVOUS SYSTEM I have so few specimens and such a meagre supply of cases that to attempt it at present, would be premature.

In my letter to the Council of Education, forwarding copy of the 1st Edition, I stated that I could not ask others to take the risk of continuing a work like this in a country were life and health are so uncertain. Then I had twice been laid up from the direct consequences of a pursuit of Morbid Anatomy. I must be thankful for the measure of success already attained, and hope for the future.

I owe for this a deep sense of gratitude to ALMIGHTY GOD. Often during the five years in which this work has been in progress, it has been stopped—the forms left idly to break up at the printers. For weeks together the destroyer has been among us. The friend in whose counsel I have one day joined at a cholera case, has been himself a victim before another sun had set; or again the Surgeon whom I had left well and happy at dinner, is dead before the night gives way to morning. It is difficult—it is impossible to pursue with calm and equal thoughts, the labours of literature and science, amid such scenes as these. The sheets have remained unfinished, the blanks have been torn off upon more than one occasion to mark those very books, as not my own, for return;—in case I never might be permitted to resume the pen. Such is *India.*

But they are many to whom I may still give my hearty thanks, first among these for an interest in the work that was never relaxed, and an official support without which it could not have continued, my friend Dr. MOUAT—who as a member of the Council of Education in India has very materially forwarded my views. To Dr. GREEN for many most valuable contributions—to Dr. CLARK of Dum Dum—and Dr. MARTIN of the Eye Infirmary, for much kind assistance;—to Messrs. JACKSON and STEWART, my colleagues in the College. Messrs. ROSS, OXLEY, E. GOODEVE, and many others whose names are noticed in the work itself, and lastly to Dr. EDLIN, for the handsome manner in which he has spoken of it in his journal, and especially to the author of the very kind review in the London Medical Chirurgical Review, so cheering to the spirit of an Indian author.

The changes which have taken place in my appointments in connection with the Medical College, may possibly interfere with a continuation of this work, to which entire freedom as to the examination, dissection and arrangement of specimens is essential.

PREFACE TO THE FIRST EDITION.

THE two first divisions of this account of the pathological preparations have been forwarded to the Medical Board, for their information; "with a view to obtain morbid and other specimens from the Civil and Military Hospitals under the control of the board." It is probable therefore, that in future, the museum will increase, as respects both the nature and number of new specimens, in a manner more in conformity with its wants.

This could not be expected whilst it remained in the state in which I found it, without classification or systematic arrangement of any kind,* and without a catalogue based upon such principles.

It was the expressed desire of the Sub-committee of Education, that the labours of those gentlemen, who formed the Museum of the Medical and Physical Society, should be permanently recorded. This record, if ever made, is lost, and we can only learn generally that the following gentlemen were chief contributors. Messrs. J. Barber, J. Toulmin, D. S. Young, T. Tweedie, G. Angus, J. Grierson, R. M. Ronald, H. H. Spry, A. K. Lindsay, R. M. Martin, J. Tytler, J. Grant, H. Crockett, R. N. Burnard, H. H. Goodeve, T. A. Wise, T. Ward, W. Mitchelson, W. Bell, J. C. Boswell, F. H. Brett, W. Darby, W. L. McGregor, M. Julien Desjardins, R. Tytler, K. McKinnon, J. Burnard, C. J. Fuller, D. Stewart, F. Corbyn, P. Bramley, G. Waddelly, and W. S. Anderson (Madras) and especially the lamented Dr. Twining.

Whilst the Army Surgeons of the Royal service, have raised at Chatham, a noble monument of pathological science, which contains contributions from every quarter of the globe; to the Bengal Medical service, we see that the pathological portion of the Museum is indebted, not only for its first foundation, in the Museum of the Medical and Physical Society, now incorporated with it; but also during the last two years, for preparations from Howrah, Dum-Dum, Barrackpore, Hoogly, the General Hospital, Police Hospital, as well as the Hospitals in the Fort and at Alipore under my charge. The most numerous and valuable however, being obtained from the resources which the college now possesses in its own Hospitals; and I confidently hope, now that the wants of the Museum will be better known, that contributions may be derived from all parts of India.

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* Extract from report on taking charge of museum.

"The first and most striking defect was the utter want of any arrangement or classification. Parts illustrating human anatomy, being mixed up with those of comparative anatomy, skeletons and bones of men and animals jumbled together, "rudis indigestaque moles."

"Of the morbid anatomical preparations, which constitute the chief, and the most useful part of the museum, there is no arrangement; diseases of the uterus, skin and mucous membranes, often meeting upon the same shelf,—not even separated from the illustrations of healthy structure.

The value of a good Museum, with its contents accurately described in a proper catalogue, and the advantage to statistical medical science of publishing such catalogues, with cases, is well described in one of the leading English Journals. "The Lancet" says, "But the Museum fails to be available to our instruction without the well-arranged Catalogue. The value of a Museum Catalogue, moreover, is not limited to the halls in which the preparations are preserved, it is at all times and in every situation a trustworthy register of facts of practical existences; hypothesis and imagination are unsuited to its pages. In the Catalogues of Museums we have the eloquent representatives of the Museums themselves, available at the instant to aid us in research and inquiry. With what gratification must not the practitioner survey his collection of Museum Catalogues, they almost make him the possessor of the collections which they illustrate. *If an interesting or remarkable case offers itself to his notice, if he wish to inquire whether a parallel case be in existence,* he obtains *at once the information which he seeks, in the Catalogue of the most important museums in the world.* On such grounds as these it is, that we always feel pleasure in seeing a new museum catalogue issue from the press, and we ever regard it as a valuable addition to our store of practical information; and for the same reason we cannot but feel indebted to those who have bestowed their time and labor on the undertaking."

It is on such strong grounds as these, that I would commend the museum and its objects, to the service in general, thoughout India.

But as respects education—the value of a good museum, well arranged and accurately described to the *students of medicine,* is incalculable. "Whilst there can, I presume, be but one opinion of the importance of museums to a teacher,"* "yet it is a fact universally admitted and acted upon by all lecturers, that they cannot avail themselves, even of the small collections which many possess, owing to the destruction consequent on exhibiting the perparations, arising solely as I think from the total ignorance on the part of the students of the nature of these preparations."*

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* Knox.

The Medical College lost one-fourth of all the preparations it contained in two years. These were totally lost or destroyed; independent of injuries to others. Hence besides a desire to engage the medical profession in India, to contribute to an institution so important as connected with medicine, and one which is so nobly supported by Government, I have also in a more especial manner, kept sight of its importance to the cause of medical education in the College itself.

Plan for extension and restoration.

The following plan therefore which I submitted on taking charge of the Museum, is founded upon these two principles. The one of raising the Museum and its objects in the estimation of the student,—the other of making each student an active and zealous contributor to its stores..

Detail of Plan.

The detail of this plan, as regards future additions, will be more fully apparent, if the objects of the museum be considered as divided into four classes, namely:—

1st. To illustrate Human Descriptive and Structural Anatomy,
2nd. Morbid or Pathological Anatomy,
3rd. Surgical Anatomy, *and*
4th. Comparative Anatomy.

1st. Descriptive Human Anatomy. *The skeletons* required for the different classes of students, in their osteological studies, might be produced in any quantity by the Junior class Students. But the natural ligaments would be left, instead of artificial wires. They might be made capable of flexion, if cut in a proper manner.

All the ligament preparations might be produced by this class, and the parts from the operating class, would answer very well.

All mere muscular preparations, could be had from the labours of this class. It is only necessary that they should be taught to regard each day's work as permanent. Such as are chosen by the anatomical teachers, as fit for preservation, could be sent down to the receiving-room to dry, and then varnished with common Bazaar varnish, the name of the dissector attached; and out of these, at general examination, the best might be rewarded with a place in the museum and a medal. The others would be the property of the students themselves, given in charge of the Native teachers and kept for daily reference. Thus the necessity of very expensive wax models, and of articulated skeletons from Europe, would be done away with entirely.*

Still keeping in mind the same principle, which is found so beneficial in Europe, that it is an *honor* to contribute to the Museum; the *senior students* might be taught to regard each day's work as permanent, might be encouraged to hope for a place in the museum.

The best preparation of the *nerves of organic life in the fœtus,* or young subject, might be rewarded with the large Gold medal. The best of the *Crebro-Spinal nerves,* with one of less value. The best injected preparations of the *arteries,* should be rewarded; and *the veins* well shewn by injection and dissection, might be also entitled to a Silver medal, or Rupees——.

Many preparations would thus be made, dried, varnished, and put away When the general examination came round, these preparations, tried by an Indian summer, would shew the carefulness of each dissection, by the oozing out of wax from cut vessels. The prizes might then be awarded. *The very habit of carefulness is most valuable. The absorbents* should be rewarded with a suitable prize proposed to those only who have honors.

2ND. MORBID ANATOMY. The illustrations further necessary for this part of the museum, cannot be given but as occasion serves. They must be dependent upon the resources of the College Hospitals, and upon the contributions sent from the large Military Hospitals, both here and elsewhere. Their value, as subservient to instruction, would be greatly enhanced by good histories, and characteristic drawings.

3RD. SURGICAL ANATOMY. The anatomy of relation, of such parts as are most commonly the seat of Surgical operations. Of these there is at present nothing whatever. Of Morbid Surgical Anatomy only, a number of specimens have been lately added by myself.

The last division, or

4TH. COMPARATIVE ANATOMY, may now be considered; which though the least practical, might be rendered subservient to instruction, if increased in a more systematic manner. The organs of support, and the tegumentary coverings of various classes of animals, being all that it can now boast of; yet it must be obvious that these, alone, will no more teach the true and essential organization, of the animals to which they belong, than would the bones and skin of man, suffice to teach human anatomy. Besides, as observed in the last report, to multiply these, would involve the necessity for more room, than is now available, in order to exhibit them; and an expense of nearly Rs. 100 monthly for articulation.

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* The very profusion of subjects at the Medical College, is apt to give rise to a careless habit of dissection; and nothing will so much tend to counteract this, as that full dissection *of any one part,* which is here recommended. For instance, cutting off the muscles at their origin and insertion, itself a most useful exercise, that which remains, has only to be dried to give the natural skeleton.—*See* NOTE, p. xiii.

A more eligible plan perhaps, would be, to get one passed student, chosen for his anatomical skill, who under the direction of the curator, could work at the internal structure of the various animals, from the molusca up to a man.* These, would not for years, exceed the capacity of the present building.

Lectures on Morbid Anatomy.

It might greatly promote the practical knowledge of the students, if the whole museum were brought before them annually, in a set of Pathological demonstrations, to the 1st Class, in English, to the 2nd Class, in Oordoo.

Such a course of lectures or demonstrations was "not thought advisable" by the Council of Education. The notes therefore, which had been already formed, are here published, and the following is the detail of the plan, in reference to description, which I have adopted, as being the most simple and practically instructive.

In the preliminary Observations, much time and trouble is saved, by grouping the preparations of each compartment, according to their more prominent analogies. An accurate description of each then follows. To these are added *cases*, illustrating the specimens. This sometimes involves the analysis, and reduction of many folio pages, into a few paragraphs, in which such portion only of the case is retained, as bears upon the specimen. With regard to the *length* of these clinical illustrations of diseases of the blood vessels, air passages, heart, and lungs, if any apology be necessary, it may be found in this fact, that no other department of morbid anatomy exhibits so plainly the relation between symptoms and pathology;—between cause and effect; no other so nearly approaches the "certitude de medicine." There is no probability of the brain, or liver, being so rich, (if I may be allowed the expression,) in cases. For this reason, that in them, severe *disorganization*, is in many cases, hardly distinguishable during life, from slight *disorder*.

The close of each section, comprizes in a series of *practical observations*, the general bearing of the facts upon the treatment of disease, with reference to the most recent, and the best received opinions on the subject. At the request of my friend Dr. Mouat, I have added in notes the titles of the works referred to, the page, and volume; and have, whenever practicable, confined my references to works in the English language, and where this was not possible, have given the entire passages from other languages. Whenever the specimens, which the museum contains in *comparative anatomy*, could be brought forward, in illustration, they have been adduced; the preparations being indicated by their proper numbers.

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* The Government has now (1848), appointed Baboo DWARKANATH BOSE, a member of the Royal College of Surgeons, to the Museum department, under the direction of the two Anatomical Professors.

Reference, in illustration, has been also made to other compartments, as "the liver," "brain," &c.; in the same certain, and easy method, by citing their numbers, as contained in the *numeral Catalogue.*

This plan, is in my opinion, calculated to confirm, and strengthen, the instructions of all the other teachers in the College; whether of Anatomy, Surgery, Medicine, or Midwifery; and that without interfering with any.

I may further observe, that the most intelligent of the students, have been most frequent in their application for information upon the intention and use, of different specimens which we possess. It appears to me therefore, that ordinary structural anatomy, although an indispensible *preparation*, cannot itself, instil pathological science. Even the best students of the College, during the last two years, have found much difficulty in describing morbid appearances, and have often applied to me for assistance. This permanent commentary, faithfully executed, will be available as long as the museum itself, as a reference for the facts and terms of INDIAN pathology.

Not only to this class, but to the Military class, with whom my connexion is more intimate,* will the Museum prove useful, if explained to them. There are no students who spend so much time in the Museum,—there are none more inquisitive,—none, by whom every fact well learned is of more direct value to the state, when they become "Native Doctors."

During many years at Fort William, (where for the Reserve Guards they are changed every month) I have had considerable experience of this valuable class of subordinates. On the march, and at out-stations, also, were they are often our only assistants in dangerous and difficult operations, as well as during the prevalence of severe epidemics. Always, and at all times, the greatest desideratum is, to ascertain what they really have observed, so apt are they to give a name, in lieu of well reported facts. Pneumonia, and Pleuritis Apoplexy, Epilepsy, Dysentery, Diarrhœa, &c., are quite familiar terms with regimental Native Doctors, but ask for facts, and symptoms, and another, perhaps most different disease is indicated. When they observe in the Museum, the bowel ulcerated, and even perforated in dysentery, they can understand the meaning of bloody purulent stools; when they see great abscesses in the lungs and liver, they understand then, in a much more definite sense, what is implied in the term they so often use "inflammation hogya;" and so on with reference to other organs.

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* Appointed by the Governor General in 1841, as part of my official duties in the College, to superintend an annual course of lectures on practical Surgery to this class.

Moreover, the season for anatomical study, is in this hot country, necessarily, short. In the museum, however, well connected in all its parts by a descriptive catalogue, with practical comments, much may be learned; especially if in addition to morbid anatomy, surgical and structural anatomy be displayed *permanently*, by preparations.*

CIRCULAR FROM THE MEDICAL BOARD.

To the Superintending Surgeons of Divisions.

November 25th, 1843.

SIR,

I have the honor, by direction of the Medical Board, to forward to you copy of a letter, No. 413, dated the 11th ultimo, from Dr. Mouat, Secretary to the Medical College and Council of Education, soliciting the co-operation of the Board in procuring specimens of Morbid Anatomy for the Museum of the Calcutta Medical College, and which I am desired to request you will be so good as to communicate to the Medical Officers of your Division.

2d. The Board do not deem it necessary formally to urge a compliance with the wishes of the Councils of the Medical College and of Education, as they do not doubt that a right and liberal professional spirit will ensure the voluntary support of every Medical Officer on the establishment, to a design so well calculated to advance professional science, and they feel assured that no opportunity will be permitted to escape, of preserving such specimens of Morbid Anatomy as may be met with in their practice, and transmitting them to the Board with a complete history of each case, to be placed at the disposal of the College Council.

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* NOTE TO SECOND EDITION.—Since my appointment in 1845 as Professor of Military Surgery to this class, I placed it upon the same footing as regards dissections with the English class, and was encouraged to this by the Council of Education who stated (1835)—

"The plan originally suggested by you and embodied in the Preface to the 'Pathologia Indica,' is deemed an excellent one for not only making the students good and careful dissectors, but for supplying the Museum with a series of valuable anatomical preparations. The Council will be prepared to recommand the plan to Government for adoption, should you make arrangements for carrying it into effect."

My efforts were admirably seconded by the English students. But with the Military or Hindustaní class, it was even more successful. Out of 100 injected preparations of blood vessels added to the Museum last year—the greater part, and the best, were from the students of the Military class; who at the same time had become such careful dissectors that in this respect they attained to greater excellence at the final examination than the English class itself.

The increasing interest taken in the Pathological department of anatomy is shown in the following letters printed in the India Journal for 1843. The subject has since been taken up by the Supreme Government.

The expense incurred in forwarding these contributions will be defrayed by Government.

(Signed)
Officiating Secretary to the Medical Board.

J. Forsyth, Esq. Officiating Secretary to the Medical Board.

SIR,

I have the honor, by direction of the Council of Education, to forward for the information of the Medical Board, the accompanying printed descriptive Catalogue of a portion of the preparations in the College Museum, drawn up by the Curator, Assistant Surgeon Allan Webb, and to solicit the co-operation of the Board in obtaining specimens of Morbid Anatomy for the Museum in question. As the great pathological Museum at Fort Pitt has been chiefly formed by contributions from the Royal Medical Officers serving in every quarter of the globe, so it is deemed possible by the Council to obtain from the Civil and Military Hospitals of India, a similar collection illustrating the diseases of this country, and preserving remarkable Surgical and other cases which are worthy of record, or capable of throwing light upon the pathology of tropical diseases, and of affording instruction to those who will have hereafter to treat them. Should the Board concur in these views, and regard with equal interest the formation of an eastern museum to rival the great collections of Europe, which will be equally open to the study of members of the medical service, as to the students of the Institution in which it is placed, the Council request the favor of their addressing a circular letter to the Superintending Surgeons of the various divisions, inviting the Civil and Military Surgeons in charge of Hospitals to forward to Calcutta, through the regular channels, such morbid specimens, accompanied with a detail of the cases, as they may consider of sufficient interest to be preserved and placed on record.

The whole of the specimens in the possession of the Medical and Physical Society have already been made over to the Medical College, where there are now collected more than 600 preparations, some of great interest and importance, as may be ascertained by reference to the accompanying printed list. The remainder shall be duly forwarded to the Board when completed.

I have the honor to be, &c.
(Signed) F. J. MOUAT, M. D.
Secretary.

Council of Education, the
11*th October,* 1843.

DIVISION.

As respects the division or order of the subjects treated of, I must acknowledge that I had at first no other intention than to treat of them in the order of their frequency as determined by the number of morbid specimens. Those diseases which are most frequently fatal in India are clearly most important. It happens, however, that without aiming at it, the pathological arrangement adopted is physiologically considered as good a one as I could wish:—the most vital organs taking the first place.

It being premised that all circulation and respiration in man are parts only of one common function, carried on by one common apparatus, consisting of blood-vessels, air-vessels—hearts and lungs—for the use and well being of the blood itself, this is the order in which they are treated of in

PART I.

The Pathology of the Blood.
The Pathology of the Blood-vessels.
The Pathology of the Heart.
The Pathology of the Air-tubes and Lungs.
And influence of Air.

But not only must the blood corpuscles move and breathe, but the vital actions to which they are deputed, are assisted and completed by other *accessory organs.* The liver purifies and renews the venous blood; the kidneys purge the arterial blood. The spleen renews and remodels the blood vesicles.

PART II.

Therefore we have—

Pathology of Liver and Biliary Apparatus.
Pathology of the Spleen.
Pathology of Kidneys and Urinary Apparatus.

To which is added Pathology of Generation, as preliminary to our investigation of the deranged phenomena of reproduction of tissues and of cellular development generally.

PATHOLOGIA INDICA.

PART I.

MEDICAL PATHOLOGY.

THE PATHOLOGY OF THE BLOOD;
THE PATHOLOGY OF THE BLOOD-VESSELS;
THE PATHOLOGY OF THE HEART;
THE PATHOLOGY OF THE AIR-TUBES AND LUNGS;
AND INFLUENCE OF AIR.

> "Morborum curatio morborum scientiam cognitam ponit. Quamobrem pathologia medicinæ praticæ præmittenda, quia nexum morborum cum causis quæ morbos creant et symptomatibus quæ morbos sequuntur, *una indicat pathologia.*"
>
> C. Prys van der Hoeven.
>
> De Arte Medica. Lib. i.

INTRODUCTION.

PATHOLOGY OF THE BLOOD.

THE cure of disease is mainly dependent upon the science or knowledge of disease, and Pathology is the term by which this science is distinguished; Morbid Anatomy being the foundation of the science. Morbid Anatomy is the chief subject of the observations, researches and conclusions embodied in this work. THE ANATOMY OF INDIAN DISEASES, like the anatomy of disease elsewhere, shows the intimate connection which exists between change of form, and change of action, in the various structures of which our bodies are composed.

But even the fluids of our bodies are full of organized forms. And that fluid whence all others proceed,—that fluid whence all the solids are produced, and into which they become again resolved,—that fluid by which all other structures live, and breathe, and grow;—that fluid which constitutes the chief part of our body,—that fluid of which a single drop microscopically magnified is shown to contain innumerable organized vesicles;—is likewise shown to have them also changed both in form and in their mutual relations, in the different states of disease. The blood, we have seen, is a true organism. "It lives, and moves, and has its being." Of all animals, it is emphatically declared to be, "the life thereof," being indeed so pre-eminently necessary, to all vital action, that whatever interrupts it, is disease; whatever stops it, is death; total or partial destruction. What then, I ask, is that change which long persistence of diseased blood cannot effect? How vast the variety of lesions of structure to which our frames are subject;—how constantly the change of form is associated with change of office. Yet I repeat, what is that morbid change, whether internal or external, which a depraved condition in the blood is not sufficient to induce even in the most perfect form of man?

In the majority of the most fatal diseases of *India*, morbid anatomy, if restricted to the solids, would not explain anything adequately. If we take some of the most common and most rapidly fatal diseases, and carefully investigate their nature through the medium of their morbid anatomy —take rapidly fatal fever that destroys in twelve hours—take Cholera, that destroys in six or seven hours—take land or sea scurvy, in which, without pain or sickness, patients occasonally drop down dead; lastly, take coup-de-soleil;—or take delirium tremens, most carefully scrutinize the morbid appearances,—nothing in the solids of the body presents itself, which you can regard as essential to such diseases, yet they all strongly resemble each other in these two characteristic features—enormous congestions of blood—and the fluid condition or altered nature of the blood. Every other feature may vary in every one of them, but the alteration in the blood is invariably found.

My friend Dr. Green, when at Howrah, made a tabular parallel of morbid appearances—in 6 cases of fever, 5 of cholera, 2 of coup-de-soleil, and of death from drinking, showing this similarity of morbid conditions. We owe also to the same able pathologist cases showing similarity in the nature of sea scurvy and of putro-adynamic fever, indicated by symptoms and by dissections.* *The fluid altered condition of the blood was common to all.*

Now the same inductive reasoning which would have led us to associate the structural changes of solids, had such existed, with the symptoms observed, should lead us, when we find no structural lesion, unless it be in the blood —to investigate the alteration of the blood, and endeavour to connect its changes with the symptoms observed, for "It cannot be reasonably denied that there is a most close and necessary correspondence between the normal or pathological impressions of the fluids and the modification of their composition, or their physical changes." Are these changes in the blood corpuscles specific uniformities for each disease, will changes seen in one drop of blood taken out of the general current, indicate the state of the whole mass of blood at that time, and under that condition of the system, i. e. that disease? Has it been tried?

The *vitia solidorum*—are almost always preceded by *vitia humorum.* This truth cannot be disregarded in an attempt like the present to deduce from a vast number of plain facts, or "practical existences," those things which are necessary to disease, which are essential. In a climate like this, "*rapid*" seems written upon all the phenomena of life,—and therefore all the phenomena by which life is terminated: and the most frequent and most rapid manner in which life terminates in the Tropics, is I think by disease or death of the blood corpuscles. Hence the necessity in this country of clear and well digested views *before,* and in order to, practice.

That there are more specific changes in the blood than those gross and obvious ones of thickening, thinning, fluidity and coagulation, &c. is quite certain. If we pass successively over the field of a solar microscope, drops of blood from cases of scurvy, cholera, and typhoid fever, we do find very obvious changes from health in each drop; differences and distinctions—both in the form of the individual corpuscles and also in their manner of grouping with each other. These we shall hereafter allude to. When we see the corpuscles *always* running into '*rouleaus*' in inflammation, may we not suppose it possible that *changes* either of grouping or of the specific individual form of the corpuscle, capable of being registered by the compound microscope, may exist in all distinctly marked *blood-diseases;* plague and cholera for instance. Would it be possible to collect observations upon the blood in all our great INDIAN epidemics.—A single drop of blood dried upon a slip of glass, would it not suffice for each case; and in our College we now possess both microscopes and men well skilled in their use.

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* Trans. Med. Phys. Soc. Cal. Vol. viii. p. CCLXV. Appendix, p. ccciii. op cit.

As respects the production of vital derangements, we shall find that the more closely we investigate the causes of disease, the more extensive is the sphere of evil action which we shall feel disposed to assign to impure air. Whether we regard the two extremes of vital destruction, the most rapid death by cholera—or the least rapid form in tubercular phthisis, we readily refer them both to the action of impure air upon the blood-vesicles primarily. *The respiratory organs then ought to be most commonly diseased, and they are so.* But I comprehend under this term—blood-vesicles, blood-vessels, air-vesicles, air-tubes, and their central hearts, and lungs.

Physiologically considered the blood-vesicles are the true respiratory organs:—blood-vessels, air-vessels, heart, and lungs, being component apparatus of one entire breathing machine. There was deep truth in the old physiology of the GREEKS, which made even the arteries breathing tubes. Assuredly we cannot breathe without them. Our breath is our most essential nutriment;—these vile bodies even now are in a great measure spiritual. Pathologically speaking it is well to reflect upon the grand fundamental fact, which LOCKE has thus expressed:—"The identity of the same man consists in a participation in the same continued life, by constantly fleeting particles in succession vitally united to the same organised body," and to ponder the commentary upon this, found in the works of BARON LIEBIG.

One single instance may illustrate it. We can show in our museum the body of a Hindoo woman in the prime of life, weighing now twelve pounds only.—The rest of the corporeal elements have exhaled through the skin; there has been no decay. For, during nine years, putrefaction has been prevented even in Bengal by simply injecting arsenical solution through the carotids.* Of that living frame then—how much was fluid? How much *aeriform* matter has spontaneously exhaled through the skin, to leave in this dry mummy only *twelve* pounds of solid organism, which yet retains the form and lineament of humanity so perfectly, that the very *caste* of this woman is discernible. It is possible then, we must remember, to diffuse by means of the blood vessels, and that too throughout the whole body, an agent that shall so pervade every part as to render it incapable of putrefaction; even when for years freely exposed to the air of Calcutta. This may lead us to regard with attention other facts, to be adduced hereafter, which indicate the converse of this;—namely, that it is possible to diffuse throughout the whole body, a putrefactive agent which shall speedily induce its universal decomposition or death.

PATHOLOGY OF THE BLOOD CORPUSCLES.

From PROFESSOR SHARPEY'S description of the BLOOD we know that the blood corpuscle consists of a thin vesicular envelope enclosing a nucleus, and that a quantity of soft red-colored matter is interposed between them. *This is its normal structure.* But we know also that the vesicle is subject to the laws of endosmosis. A thin fluid will pass through by endosmosis to the thicker matter within the vesicle, or vice versâ. Thus vesicles in a thick syrup will shrink. Vesicles in pure water will swell, and *discharge their coloring matter, and even burst. These last are abnormal states.*

Before a vesicle become burst or disorganized, I consider it only functionally disordered. Thus shrivelling and collapsing are seen, after excessive bodily exercise as racing both in men and animals; also in spirituous drinking to excess. The vesicles may be restored by rest and water.

I conceive, the first effect of sulphuretted hydrogen must be to invert endosmotic action of the vesicles. They are not burst, there are no bloody discharges. It is *a functional disease.*

In the bite of the rattlesnake, in plague, or Typhus gravior, the vesicles have burst, the organism is destroyed, they are *organically diseased.*

EPIDEMICS SHOWING DISORGANIZED BLOOD CORPUSCLES.

It seems to me so essential to bear in mind the very great fatality as well as frequency of diseases of the blood in treating of Indian Pathology —that I could not avoid prefacing this volume by a brief history of some of the most remarkable forms of them. VOGEL has shown the blood corpuscles to be disorganized in typhus, I assume that they must be so in PLAGUE even to a greater extent. These and analogous diseases I distinguish as ORGANIC DISEASES OF THE BLOOD, contrasting with others which present a state of blood, like that which follows excessive perspiration from exercise, or after excessive spirituous potation, wherein the blood corpuscles are found dark and wrinkled, such are functional changes in the blood. CHOLERA and SWEATING-SICKNESS I call functional diseases of the blood. If we examine the series of cases in the first epidemic here adduced, we see a true Indian plague, precisely resembling the great plagues of Europe; and yet almost as precisely resembling the bite of the rattlesnake: even in the bloody hemorrhages and production of buboes. In the snake-bite cases the cause is plainly a ferment—a poison—disorganizing the blood; for it is hardly conceivable that the vesicles could pass entire *in the hemorrhages* occurring within a few hours after a bite, through mucous membranes of the lungs, stomach, or kidneys. The same remark applies to plague, an intermediate condition is typhus fever, wherein the blood vesicles are proved by VOGEL to be dissolved, probably from the presence of ammonia.

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* Aided by this auxiliary no less than 500 bodies were dissected during the last session, 1847-48. This great triumph over corruption or its application to dissection in INDIA, is due to Dr. W. B. O'SHAUGHNESSY.

EPIDEMICS SHOWING FUNCTIONAL DISEASE OF BLOOD CORPUSCLES.

It appears to me then exceedingly probable that there are diseases in which without the blood vesicles being disorganized, we may assume that their function is only perverted—they are functionally diseased. We may, I think, reason inductively thus;—that which we see take place in animal membranes by applying sulphuretted hydrogen, may take place in the vesicular envelope of the blood corpuscles, and blood capillaries; thus endosmosis may be inverted. That which we see take place in one capillary tube, attached to vessel full of water, and charged with only one kind of electricity, may take place throughout all the capillary pores of our bodies; and they may exude out their contents with preternatural rapidity. Cholera may, and probably does arise in both ways.

The last instance may account for the sudden cessation of the disease as an epidemic after a violent thunder storm;—the first instance for its repeated reappearance *in foul air localities*. There is one Barrack in Fort William in which I have seen more fatal cases than all the others put together. I speak from seven years' experience. Again, sporadic forms of Cholera often resemble typhus, typhus glides into Cholera, and Cholera into typhus. And they both exist in their worst forms in *foul-air localities.*

Since these views of the common origin existing between fever, cholera and some other diseases were first published (see p. 221,) I have become acquainted with the very valuable work of DR. SEARLE; for which I, in common with others of the service, am indebted to the liberality of the HONOURABLE COURT OF DIRECTORS. It is with no little satisfaction that I observe therein, adopted from his own experience, principles, which if true, must ultimately become leading facts in Medical science, and which I have myself deduced from the data recorded in this work. He is equally with myself convinced that fevers and cholera may have a common origin in sulphuretted hydrogen, and that their symptoms, as well as those of dysentery, may be referred to this one common cause inducing various kinds and degrees of depraved vital actions. But whilst I must claim the merit of originality in making these conclusions for myself, I have also taken care to state the grounds upon which they rest, and it will be seen that these deeper investigations, if I may so say, into physiological and pathological science, lead me to rules of practice precisely opposed to those of DR. SEARLE, and if I mistake not, to practise far more efficacious in restoring health. If sulphuretted hydrogen be a cause the most common of choleraic state, and of the state of fever, its action is distinctly accounted for by me,* its effect upon the blood vesicles, and air vesicles and capillaries would be to prevent their absorbing oxygen, to induce inversion of all healthy action, as shown in the passive filtration outwards from the skin and bowels. PROFESSOR MATTEUCCI regards the catalytic action of the blood corpuscles as depending upon their being *charged with oxygen.* In cholera the filtration outwards I regard as indicating by its amount and by its intensity, whether from the skin or bowels, the intensity and danger of the desease. (DR. SEARLE thinks them curative efforts.) I regard therefore any medical treatment that will dry and warm the cold sodden skin, warm the breath, and restrain the passive flow of matters from the bowels, as arresting the disease by inducing a return of the endosmotic function. To the Profession in INDIA, whose practice has in this disease long been settled without much theory, I would leave to decide whether the safety of cholera-patients is best insured by bleeding and emetics, promoting the discharges, and avoiding opiates and its compounds, or by regarding these discharges not as salutary, but as nature's *vital actions subverted.* They are mechanical filtrations outwards, they cannot long subsist and life be continued. And in opium and its derivatives we have the specific antidote to the poisonous action of sulphuretted hydrogen, and other analogous gases which are the true irritamenta malorum.

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* Matteucci says, "sulphuretted hydrogen is *the only body*, which having acted on the blood even in very small quantities renders this fluid incapable of being arterialized by oxygen."

CHOLERA (FUNCTIONAL BLOOD-DISEASE) *treated by inhalation of ether* ENDING IN GANGRENE (ORGANIC-BLOOD-DISEASE)

Communicated by Mr. Daly. House Surgeon, Med. Col. Hospital, by permission of Dr. Jackson.

(*Illustrative of the theory of Cholera as Asphyxia of the Blood-Vesicles.*)

May 8th.—John Rogers, aged 40, a stout robust man, by occupation a sailor, native of England, was discharged from Hospital two days ago, after recovering from an attack of delirium tremens, or of—

FUNCTIONAL BLOOD DISEASE.—(*First stage.*)

Re-admitted to Hospital at 7 A. M., with spasmodic cholera; states that he was seized with purging and vomiting at 9 o'clock last night, has now most violent spasms of hands and legs and muscles of the abdomen; the gastrocnemii muscles of both legs are violently contracted into hard knots, causing him to cry out in great anguish—watery stools and vomiting continue; the whole surface of the body covered with clammy perspiration forced out apparently by the extreme pain and violence of the spasms; pulse scarcely perceptible; urgent thirst.

CHOLERAIC.—(*2d stage.*)

Hot bath. Mustard plaister to epigastrium, friction with turpentine liniment.

R. Hydrarg. Submur. gr. x.
Opii gr. ii. ft. pil s. s.
Brandy and water for drink.
R. Spt. Etheris Sulph: ʒss.
Tinct: Opii gtt. xl.
Spt. Ammon. Aromat ʒj. ex.
Mist. Camphor. ℳ. s. s.

10. A. M. Has obtained little or no relief from the spasms, which are as violent as ever and more general, the muscles of the abdomen, and especially gastrocnemii, are contracted into hard, immoveable knots, which no friction seems to soften nor alleviate, and the poor man's cries and sufferings are quite distressing. *Administered the inhalation of Ether, which afforded him instantaneous relief; the muscles gradually relaxed, and he expressed himself as greatly relieved. Soon after he fell into a short slumber from which he awoke quite free from pain of any kind, the cold, clammy sweat produced by the agony he suffered from the spasms, was soon replaced by a warm perspiration all over the body.*

Continue the Ether mixture without the Laudanum.

Vespere.—Has continued quite easy ever since, no return of the spasms, except once or twice, when he attempted to get up to the close-stool, he felt them in the calves of the legs, but a little rubbing soon relieved him. Stools less frequent, but still watery, stomach quiet, pulse and skin improving, urgent thirst; has voided no urine since admission.

R. Pil Hydrarg:
Ext. Colocynth: Co.
Camphor ā gr. iv.
ft. pil. ii. ter die s.
Sago and Wine,

May 9th.—Has continued improving ever since, stools watery but coloured, has voided no urine yet, pulse and skin good, less thirst, countenance cheerful and voice strong.

Hirudines vi. temp.
Ol. Ricini.
Spt. Terebinth, ā℥i. stat.
Rept. Pil H. S.

May 10th.—Complains of great weakness, looks dull and heavy about the eyes, head rather warm, pulse and skin good, stools dark coloured, has voided a small quantity of urine.

Ma 11*th.*—Had several dark green slimy stools from the oil, passes his urine freely and says he feels better, but is still very weak and languid; pulse and skin good, tongue very moist.

Rept. Pil Hydrarg:
Ext. Colocynth:
Camphoræ ter die.

May 12*th.*—Is very weak and languid to-day, no appetite: B free, stools, copious fœculent, and dark-coloured, pulse and skin good, thirst urgent.

P: Calumbæ gr. v.
Sodæ Carbon. gr. x.
Rept. Pil H. S.

May 13*th.*—Very little improvement, complains of extreme weakness and total loss of appetite, B: slow this morning, and is griped occasionally, pulse and skin good, looks dull and languid.

Pulv: Rhœi Magnesiæ
ā ʒi. Zingiber. gr. vi.
Aqua Menthæ pip ℥i.

ORGANIC BLOOD-DISEASE.—*First stage* (TYPHOID.)

(About this time I first saw the man. He had a most remarkable appearance. His head, face, neck, &c. all bossed over with boils. His skin generally of a deep lurid mahogany colour. His voice pectoral, eyes blood-shot; a few days later, carbuncles large as a closed hand, were seen on his shoulder, right leg, and buttocks. *A. W.*)

May 14*th.*—*Has broken out all over the head, breast, and face with boils,* which are very painful; complains still of great languor and weakness, B free, tongue moist, pulse and skin good.

Tepid Bath.
R. Liq. Potassæ ʒss.
Decoct. Hemidis. Co.
℥iv. ter die.

May 15*th.*—*The boils are becoming more numerous, several fresh crops having appeared* since yesterday about the back, thighs, and legs. B free, appetite still indifferent, and he appears very weak and languid, felt much relief from the Tepid Bath.

Repetatr. Balneum
omni mane. Cont. med.
ut supra.

May 16*th.*—Is rather feverish this morning, and complains greatly of the annoyance he suffers from the boils with which he is now covered all over the body, from the scalp down to the toes; several of them are very large and suppurating, those about the head and face are very painful; B. free, appetite improving slowly.

R. Potassæ nitratis ʒii.
Antimon. Tartar gr. ii.
Aquæ ℥viii. ℥i. 3tia.
quaq. hora.

May 17*th.*—Is greatly tormented with the boils, several close to the shoulders, back, and hip have suppurated like carbuncles; one large one on his leg has been opened this morning, and a large quantity of pus discharged from it with relief.

Warm fomentations.
Cataplasma.
Continuetur. mistura.

May 18*th.*—Complains of want of rest at night from the torment he suffers from the boils, cannot lie down with any comfort, is obliged to be supported with pillows.

Continuetur. Medicamenta.
Tinct. Opii ʒi. H. S.

May 19*th.*—Slept better last night after the Draught, B not open, appetite improving, several of the larger abcesses have been opened and are discharging sloughing cellular membrane, no fever to-day.

Gregory's powder ʒii.
Chicken diet, and one
bottle of Beer.

May 20*th.*—Bowels not freely opened by the medicine; is much troubled by the numerous boils which are all in a state of suppuration in all parts of his body; continues very weak and languid; sleeps pretty well with the Anodine draught at night.

Gregory's powder.
I dram Port Wine at
noon.

May 21st.—Improving a little in health, boils still very troublesome, several of them forming large sloughing ulcers which are extremely painful, B free, appetite improving a little; stools natural, no fever.

R. Quinine gr. iii. ter die.

May 25th.—Improving slowly, 25 ibid. 26 ibid. 27 ibid.

May 28th.—Not so well, bowels not free without medicine, no appetite, sleeps badly at night, some of the ulcers very irritable and painful T. white; is very weak.

Medicamenta repetantur.

May 29th.—Bowels sluggish, complains of want of sleep and loss of appetite, conjunctiva looking yellow, the Gregory's powder does not open his bowels freely.

R. Pulv. Jalap, Comp. ʒi.

ORGANIC-BLOOD DISEASE.—*2d. stage* (GANGRENOUS.)

May 30th.—*Was delirous all night*, and slept none, bowels freely opened by the Medicine yesterday, ulcer healing, skin cool, very weak.

R. Quinine gr. iij.
Opii gr. i. ft. pil.
Haust. Anod. H. S.

May 31st.—Had four or five hours' sound sleep in the night and is quite collected and coherent to-day. Is extremely weak, yellowness of the eyes diminished. B not open, ulcers appear disposed to heal.

Gregory powder ℈ij
Repeat Quinine, and anodyne draught at bedtime.

June 4th.—Very little improvement, is very weak and emaciation daily increasing, the sore on the leg is not improving, the surface is rather extended and covered with a dark bloody slough, the edges jagged and of a livid color. Slept tolerably well in the night, but has no appetite whatever, tongue brown in the centre, but moist and red at the edges, pulse weak, skin moist, bowels open, stools dark colored and scanty, urine still high colored.

Gregorii.
Cont. Med.
3 Drams Port Wine.

June 5th—Continues nearly the same, very weak and emaciated, slept pretty well in the night, the sore on the leg is looking a shade better, not so livid, but there is yet an entire want of healthy action in the part. Bowels slow, tongue moist, appetite not improved.

June 6th. Is extremely weak and in low spirits, no improvement in the appearance of the ulcer on the leg, slept tolerably well in the night. No appetite, bowels open, stools scanty and dark colored, tongue moist.

Rep. Pulv. Gregorii.
Ammon. Sesqui Carb. gr. v.
Soda Carbon gr. x.
Pulv. Cinchonæ gr. xv. ter in die sumend.
Rep. Pil. Quinin. et Morphæ gr. ss. h. s.
Acid Nitric. ʒii. ad ulcer.
Pint of Port Wine.

June 7th.—Rested indifferently last night, bowels very slow and uneasy until relieved by a purgative injection. Is very weak and languid to-day with increasing emaciation, no appetite whatever, wishes to have some coffee. Sore on the leg very little improved.

Cont. Medicament
Morphia Hydrochlorat gr. i. h. s.

June 8th.—Much the same, slept rather better, ulcers very little improved, rather extending if any thing; B open once yesterday.

Apply Nitric acid one part, to 4 of water to the edges of the ulcer.
Cont. Medicamenta

(I saw him about this time. Emaciation great, weakness extreme, eyes yellow, and dusky yellowness struggling with the mahogany colour of the skin —voice weak, husky—sore on the leg black, deep, and large enough to contain an extended hand. *A. W.*)

Warm Turpentine Dressing. *10th.*—Very weak and low, sores looking gangrenous.

June 11*th.*—Is losing ground rapidly. *June* 12*th.*—Sinking, died at noon.

Autopsy four Hours after Death.

General appearances.—Great emaciation of the whole body, which is of a dark sallow hue. *Head*—Slight venous congestion with effusion of serum on the surface of the brain; substance of the brain pale and softened. Effusion of serum in both lateral ventricles and at base of skull, choroid plexus pale and flabby. *Chest.*—Both lungs apparently healthy, some old adhesions of the left lung to the pleura costalis. The heart small, pale, and flaccid, with considerably more than the ordinary quantity of serum effused in the pericardium. *Abdomen.*—Stomach distended with dark coloured fluid *resembling coffee-grounds.* Liver larger than natural, of a dark mottled appearance, and the whole of the convex surface nodulated, in the way usually termed the hob nailed liver very much indurated in structure, and *the vessels containing very dark colored blood of ropy consistence.* The gall-bladder small and contracted, containing a little tarry bile of an intensely dark color, spleen natural. The intestines presented nothing unusual, except that the vessels of the mesentery were a good deal congested, and the whole chain of mesenteric glands considerably enlarged and indurated.

NOTE BY A. WEBB.

This case illustrates admirably many opinions advanced in this work. The man had his blood injured by the vesicles being subject to the deleterious action of spirit. He then had them still further injured by a severe access of the choleraic state; Medicament (inhalation of ether) applied directly to the vesicles through the lungs relieved him from the immediate choleraic asphyxia. But the vesicles died, at least many of them. Hence boils, carbuncles, gangrene of solids. Hence lurid yellowness, coffee ground secretion gangrene of blood. A peculiar dingy yellowness, such as is seen in African intermittents, and yellow fever, is the effect of disorganized blood. It is much more easily explained thus than by "*vital exhaustion,*" as Dr. COPELAND has it—"*The yellowness of the skin, in the hæmagastric pestilence,* is either a pale yellow or a *dingy tint,* often presenting *patches* of a dirty yellow or *livid hue:* in the *yellow remittent fever* the colour is more complete and deep than in the former, and more manifestly the result of biliary disturbance; whilst the discoloration of the pestilential malady *arises from vital exhaustion, manifested chiefly in the capillaries, and in the blood itself. M. Guyon very justly remarks that, in the latter, the colouring of the skin is owing to the presence of blood which stagnates in the capillaries, or which escapes from them, and is nothing else than the tinge of a contusion;* whilst, in the remittent fever, the colour is owing to the presence of bile, and is that of true icterus. *This alteration* of the blood and of the vital condition of the capillaries is evidently *the source of the back vomit,* and of the dark colour of the evacuations, in the last stage."

Groups of facts, occurring at different times and places, follow *to illustrate blood-diseases.*

ORGANIC-BLOOD-DISEASES.

INDIAN PLAGUE.

PALI PLAGUE.

The 'Pali Plague' coming from a geological tract, in the North-west part of INDIA, abounding with sulphur and sulphuretted hydrogen—consequently in '*sesmaria*'—exactly resembles the great plague, the BLACK DEATH, which is said to have destroyed one-fourth part of mankind. The traditions of the people point to many outbreaks of this Indian pestilence previous to its last appearance in 1838. GUIDO is cited by DR. FREIND (Hist. Phys. vol. II. p. 323) as authority for the BLACK DEATH, having arisen in INDIA. And for there having been *two* species "ONE prevailed two months *attended with violent fever and spitting of blood, not one lived they died within three days,*" "ANOTHER SORT which succeeded the first shewed itself *with a continual fever, carbuncles, abscesses, especially axillary, and inguinal,* . . . . . . *They died within five days.*" That plague certainly came from the east. In China[*] awful convulsions of the earth preceded it, a mountainous country converted into lakes, &c., (these might liberate this deleterious gas.) When it first appeared in Europe in 1348, at Cyprus the same convulsions preceded it. "Before the earthquake, a pestiferous wind spread so poisonous an odour that many being overpowered by it fell down suddenly and expired in dreadful agonies."[†] CAIUS writes of the sweating sickness. "*Here also in England in this MDLI. year, miste in the countrie wher it began, was sene flee from toune to toune, with such a stincke in the mornings and evenings, that men could scarcely abide it.*"[‡]

The great plague which raged at Constantinople in 543, which spread over the whole world and continued fifty two years, beginning in the fifth of JUSTINIAN, exactly answers to the description, given of the Pali Plague only that PROCOPIUS who describes the beginning says it was not contagious then.[§]

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[*] See 'the Black Death' J.F.C. HECKER M. D., Trans. Dr. Babington, London 1833. p. 33.

[†] Op. Cit. p. 192.

[‡] "The unanimous (?) testimony of historians relate that this terrible plague began in Cathay. China." Hist Pest. Diseases vol. I p. 13. NOAH WEBSTER, Lond, 1800. [NOTE *an excellent work by a non-professional, whoever reads it can no longer doubt of the agency of Sesmania Volcanic Gas, in producing pestilence*]

THE PLAGUE AT CONSTANTINOPLE, A. D. 543.

[§] "No Physician—or other caught the Disease by touching sick or dead bodies; many strangely continuing free, though they tended and buried infected persons, and many catching it they knew not how, and dying instantly. Many leapt into the water, though not for thirst; and some into the sea. Some without slumbering or madness had their *Bubo* gangrened, and died with extreme pain; which doubtless happened also to those that had the phrensy, tho' being not themselves they understood it not. Some Physicians hereupon conceiving the venom and head of the disease to lie in those plague-sores, opened the dead bodies, and searching the sores, found an huge carbuncle growing inward. Such whose bodies were spotted with black pimples the bigness of a lentile, lived not a day. *Many died of vomiting blood.* Some that were given over by

The fever and plague as described by **Sydenham** is most plainly analogous to the Pali Plague, it brings us down to the modern scourge of the Levant at this day. It is worthy of observation because whilst the *purging* and *vomiting* and *state of the blood*, link it on with *Typhus* and *Cholera*, it eventually declared itself as Plague.* *The vomiting of blood is*

the most eminent Physicians, unexpectedly recovered ; others, of whose recovery they thought themselves secure, suddenly perished : no cause of this sickness could be reached by man's reason"

" This Plague outlived **Procopius**, no wonder if in so long a time and so various, climates and countries *it changed its symptoms, and varied.*" ....

" The same *Evagrius* says, that this Plague resembled in some things that of *Athens* described by *Thucydides* ; and in other respects was far unlike it ; but mentions no particulars, which indeed are many. The very manner of spreading itself was different. Here they sometimes died *instantly*, or the *first* day as those who were spotted with black pimples, or at least in a *few* days. And *Agathias*, who describes the same Plague upon its *second* return at *Constantinople* in 558, expressly says, that most of them died in a moment, as in a strong *Apoplectick* Fit, and that those who had most natural strength, never outlived the *fifth* day. In *that* of *Athens*, the distemper run out to the *seventh* or *ninth* day, which were the most usual days of mortality. In *that*, every body was infected who came *near* the sick : here it is particularly said to be far otherwise." Freind Hist. Phys. Part, I. p. 155. Lond. 1725.

* Plague in London. Sydenham. Sect II. Chap. I. p. 57.

Of the Epidemical Constitution of the Year 1665. *and* 1666, *at* London.

" At the same time a continual Epidemick *Fever* appear'd. It was very different from the nature of the *Continual Fevers* that reigned in the foregoing Constitution, whereof scarce any were wont to invade at that time of the year. The pain of the head was more violent, and the vomiting more severe than in the former ; and the *Looseness*, which was most commonly prevented in the other *Fever* by taking a vomit, was now heighten'd by the same, and yet the vomiting did not cease : The outward parts were dry, as in the *Fevers* of the preceding Constitution ; but after bleeding the patient could sweat, and the symptoms were presently abated thereby. And this might be done at any time of the disease, whereas in the former *Fever* you could not attempt it safely, nor, indeed, could easily obtain your desire before the thirteenth or fourteenth day. The blood was often like the Blood of those that have a Pleurisie, or a Rheumatism only it had not so white a jelly upon it. These were at first the Diagnostick *Phænomena* of this disease, but in progress of the year, the *plague* broke out, accompanied with a great number of Pathognomonick symptoms, as *Carbuncles*, *Buboes*, and the like: It increased daily more and more, and came to its heighth about the tenth of *September*, at which time about eight thousand died of it in the space of a week tho' two-thirds at least of the citizens went into the country for fear of infection."

" Its first approach is almost always accompanied with shaking and shivering, like the fits of an ague, presently violent vomitings, a pain about the region of the heart, as if it were press'd a burning fever, with the usual concourse of symptoms perpetually afflict the sick, till either death itself, or an happy eruption of a *Bubo* or *Parotis* discharges the morbifick matter, and so frees them from that deplorable condition. It does now and then happen, tho' seldom, that it comes without any sense of a fever before, and suddenly kills men, the *Purple Spots* which are the fore-runners of death, breaking out as they are about their business. But this sudden death, which is to be noted, scarce ever happens, but at the beginning of a dreadful *Plague* and is never, when it remits and is weakened, or in years wherein it is not epidemical. It sometimes also happens that Swellings appear, when neither a *Fever*, nor any other violent symptom went before. But I suppose that some little shaking or shiverings, tho' less perceptible, always precedes. They that are after this manner, may safely walk about the streets at pleasure, and do their business, as if they were well, not minding any regimen." p. 61.

" Most without warning became feverish suddenly : their bodies changed not colour, nor were hot ; the fever being so remiss 'till evening, that neither the patient nor physician, by his *pulse*, could apprehend any danger. Yet to some the same day, to others the next, or many days after, arose a *Bubo* both in the groin, the arm-holes, under the ear, and in other parts : these were the general symptoms which happened alike to all the visited person."—(See case I. next page. A. W.)

a distinguishing feature of Plague as described by **Procopius**, in this respect and in its *non-contagious character* it assimilates to the Pali Plague. It is true we hear of one form of 'Black death' in which the *breath*, or vaporised elements in a transition state, derived from the blood, communicated that state to blood of others through the lungs of others, and propagated the pestiferous disease.* Thank GOD our modern plague never does this.

PALI PLAGUE OF INDIA 1838.

By F. Forbes, Esq. *Bombay Med. Service.*†

Case 1.

"29th January, 1838. 2. p. m. Luchmi, Ætat. 15, daughter of a man who roasts jowar for sale, was seized on the afternoon of the 27th with fever and bubo in the right groin, the pain of the latter, occurring simultaneously with the access of the fever. Vomiting came on, on the second day of the disease, (yesterday) and much bile was discharged; the bowels are said to have been daily opened, the stools being extremely fœtid and dark coloured. The present symptoms are, skin burning hot; pulse quick sharp and weak; eyes heavy and watery; jaws firmly locked; gums of a deep purple tinge; is nearly insensible, and lies continually moaning. Since yesterday evening has had much cough with white frothy expectoration; the bubo in the groin is very small and hard, a mixture of the juice of the fire plant or mudár, opium, and arsenic has been applied to it. While I was in the house, she vomited a quantity of dark coloured, tenacious fluid like diluted treacle: administered with much difficulty, a dose of calomel, camphor, and opium in a little honey, but with little or no hope of benefit, as she was evidently almost moribund.

30th Died during the night. (*three and half days.*)‡

This patient was actually lying on a heap of the roasted jowár, which her father prepares for sale, and which will no doubt be disposed of, and eaten as usual."

Case 4.

29th January, 1838, *Vespere*, Seo Láll, Ætat. 7, son of a brazier, was seized on the 23d with pain in the situation of the right parotid, and on the evening of the same day, with fever, without any previous cold stage. The fever has continued since, with daily evening exacerbations, and accompanied with slight cough, until yesterday, when it became more severe, and to-day he expectorated a small quantity of florid blood. Appears to have considerable pain of chest; skin hot and dry; pulse quick and small; bowels not opened for the last four days, and only once since the access of the disease; tongue brown and dry; thirst urgent; urine scanty and red; respiration natural. The swelling is not exactly in the situation of the parotid gland, but a little below it, it is soft, and about the size of a filbert, but is described, as having been much larger until two days since. Had a poultice applied to the bubo, and give the following powder.

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* "An ardent fever, accompanied by an evacuation of blood, proved fatal in the first three days. It appears that buboes and inflammatory boils did not at first come out at all, but that the disease in the form of carbuncular *(anthraxartiyen)* affection of the lungs, effected the destruction of life before the other symptoms were developed.

Thus did the plague rage in Avignon for six or eight weeks, and the pestilential breath of the sick, who expectorated blood, caused a terrible contagion far and near; for even the vicinity of those who had fallen ill of plague was certain death; so that parents abandoned their infected children, and all the ties of kindred were dissolved. After this period, buboes in the axilla and in the groin, and inflammatory boils all over the body, made their appearance; but it was not until seven months afterwards that some patients recovered with matured buboes, as in the ordinary milder form of plague."—*Black Death*, p. 8.

† Trans. Bombay Med. Phys. Soc.

‡ I have seen fevers on the Coast of Africa, exactly like the yellow fever of America, terminate with black vomit (disorganized blood). Indian typhus as described by me (p p. 204 to 207*) often presents this symptom or vomiting of blood at the onset.—Note, A. W.

℞ Pulv. Jalap gr. iv. Sod. Carb. Pulv. Ipecac. C. āā gr. vi. Hot fomentations to be used, to the chest and abdomen.

30th. Is worse to-day. Tongue brown and dry; teeth crusted with dark sordes; pulse 150, small and weak; respiration hurried and laboured; bowels not yet opened; moans much, but is sensible. Bubo much the same. To continue the poultice. Died in the evening. (*seven days, typhoid, compare with case p. *205. A. W.*)

Case 5.

29th. January, 1838, 3 P. M. Salúk, a respectable soucár, thirty seven years of age, of a strong full habit of body: states, that yesterday he was quite well, but that during the night, he felt restless and uneasy, and was seized in the morning with cough and expectoration of blood. Has no other complaint whatever, but is very much alarmed, as in similar cases, no recovery has been known to take place; there is no headache, heat of skin, or pain of chest: pulse small, weak, and very slightly quick, but without any sharpness; bowels opened once this morning; has had several slight perspirations; expectoration plentiful, and of a bright rusty tinge, but he says he spat up some quantity of florid blood, about two hours before I saw him. The cough is accompanied by no pain; urine copious and of a deep red colour, evidently loaded with blood; gums of a deep purple tinge: ordered the following powder every two hours.

℞ Cinchon. pulv. ʒss. Pulv. Zingiberis, Pulv. Cinnamomi āā gr. vi.

To be taken in a mixture of two grains of Camphor, rubbed down with a little brandy, and mixed with milk.

7 P. M. His attendant came to say, that he had vomited the powder, and that the expectorations of blood has increased; a profuse perspiration had also broken out.

The following bolus to be taken immediately, and the powders to be given again, every two hours after midnight.

℞ Calomel, ℈ss. Opii. gr. ii. Quinin. Sulph. gr. vi. Saponis et ol. Cajeput. q. s. ut. ft. Bolus.

30th. Vomited the bolus, about two hours, or an hour and a half after he had taken it, when a profuse perspiration broke out, and an increased bloody expectoration. He now complains of some pain in the region of the heart, and in the loins; expectoration frothy and of a bright red; cough very trifling; pulse quick, small and yielding; skin moist and hot; thirst great; tongue red and clean; bowels not opened; urine copious and bloody. *The quantity of blood lost from the lungs and kidneys since the attack must be very great**. A large mustard cataplasm to be applied to the cardiac region, and the bolus to be repeated.

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* Compare with "*first sort* of Black Death," p. xxiii. A. W.

Vespere. Is much worse, complains of great and increasing debility, and occasional faintness with much thirst ; cough and expectoration of blood continue as before ; skin moist and of natural temperature ; action of the heart tumultuous and strong ; pulse at the wrist, thready and indistinct ; functions of the brain, undisturbed ; pain and anxiety about the region of the heart, much the same. The mustard cataplasm to be repeated, and an ounce of the following mixture to be given every hour, or two, in water.

℞ Camphoræ gr. xxiv. Spir. Rectificati. Spir. Lavan. Comp. āā. ʒi. Quinin. Sulph. gr. xii. Acid. Sulph. Arom. ʒiss. Vini. Opii. ʒi. Spir. Vini. Gallici ℥viiss.

30th. Died during the night. (*three days, first sort of Avignon Plague, A. W.*)

This man had been living for some time, in a kind of serai, frequented by merchants and traders, and had been much in company with a man, who had died in the adjoining apartment, four days previously, of precisely the same disease, after an illness of two days.

CASE 8.

30th January, 1838. Yemeni, a widow, Ætat. 8, daughter of a calico printer, was attacked with fever on the night of the 28th, without the appearance of any bubo. At present, skin very hot and dry ; pulse 135, small and weak ; vomiting of fluid like coffee grounds ; gums and teeth, covered with a black crust ; eyes dull and watery : is with difficulty roused, and lies moaning and tossing in bed. For the first two days, there was much headache, with delirium at night. Respiration quick and laboured ; bowels not opened since the first attack.(*See Typhus Cases pp.* *206 *A. W.*)

31st. Died this morning, having taken no medicine, as her people did not send for it, or appear to wish that any should be given.

REMARKS BY DR. FORBES.

The most fatal modification of the disease, from which no recovery has been known, sets in without any febrile excitement whatever, if we except a very slight acceleration of the pulse. The most prominent symptoms from the commencement, are slight cough, and expectoration of blood ; the cough appears to an observer, more like a voluntary act to relieve oppression or constriction about the chest, than to be caused by pain or irritation. The body is covered with frequent clammy sweats ; the countenance exceedingly anxious and wild ; thirst urgent ; tongue clean ; bowels slow ; the urine increased in quantity, and loaded with blood, which also oozes from the gums. The expectoration of blood becomes more copious ; to the anxiety and oppression of the chest, is added pain in the cardiac region, the pulse becomes quick and thready ; the action of the heart tumultuous ; faintness and complete exhaustion come on ; and a fatal syncope puts an end to the sufferings of the patient, generally *within forty hours from the attack :* the intellectual faculties remaining perfect, till nearly the last moment.

It is however, by no means rare, to see the different forms mixed or merging in each other. The attack may be at first mild, and apparently without much danger, the buboes well developed and the fever slight ; when from the third to the fifth day, and sometimes so late as the seventh, the occurrence either of delirium, coma, bloody expectoration, diarrhœa, retention of urine, or recession of the bubo, point out an unfavourable change, and the fatal termination soon follows, as in the more aggravated forms.

This epidemic equals in mortality any that has ever appeared. From the most diligent inquiry, and the results of the cases which I saw, I feel convinced, that even in its present comparatively mild state, four-fifths die, of the number attacked.

PARALLEL BETWEEN PLAGUE, AND SNAKE BITE.

By F. Forbes, Esq. *Bombay Med. Service.*

The most fatal variety, where the discharges of blood take place, and the vital cohesion of both solids and fluids, seem to be diminished, resembled so closely some cases of snake-bite which I have seen at Balmir, that I trust no apology will be necessary, for relating two of them here. This resemblance is no less curious than interesting, but as it would be out of place, to enter on any consideration of it here, I shall only premise, that although passive hæmorrhage after snake-bite, may appear a new or uncommon symptom, to many, as it did to myself, cases of this description are of constant occurrence, in the south-western part of Màrwàr and towards Sinde, whenever the patient survives the receipt of the injury, for some hours. The snake alluded to, is from two feet to two feet and a half in length, of a dirty yellowish brown colour on the back, with a white belly, and without spots.

Case 1.

28th September, 1836,. Hyjì, grass cutter, and old weak man, was brought to my house in the forenoon, having been bitten by a snake three hours previously. There is a small punctured wound on the left outer ankle with a good deal of heat and swelling extending to the leg ; breathing hurried, tendency to syncope; pulse small and indistinct ; thirst urgent. Scarified the wound and applied a cupping glass, gave two draughts of æther and ammonia in half a tumbler of sherry, and sent him to hospital.

℞ Pulv. Cinchonœ ℈i. Tinct. Camphor. C. ʒiss. Mist. Camphor. ℥iss. To be given every three hours and hot fomentations applied to the leg.

29th. Since yesterday afternoon there has been *considerable discharge of blood from the mouth, nose, gums, and bladder,* with a copious flow of bloody serum from the wound ; feels pretty easy, and has little pain. To continue the draughts.

30th. Discharge of blood from the mouth and bladder, less ; flow of bloody serum from the wound, very profuse, with great debility ; pulse very feeble and rather quick.

October, 1st. Very slight discharge of blood : is evidently better. To continue the draughts ; resinous dressing to the wound.

3rd. No discharge of blood since yesterday ; very little swelling about the ankle ; improves but slowly.

7th. Complains of great debility, otherwise pretty well ; some puffiness and stiffness still remain about the wound. Discharged.

17th. Returned to hospital *with a bubo in each groin,* and a sanious discharge from the wound.

℞. Calomel gr. vi. Pulv. Ipecac. C. ℈ss. at bed time. Poultices to the buboes, and simple dressing to the sore.

18th. Much the same.

℞. Decoct. Cinchonœ. Infusi. Chiraytæ āā ℥ii. bis quotidie. Rep. pulv. h. s. et infricetur unguent. Hydrarg. fort. inguinibus.

25th. Very weak and debilitated ; buboes somewhat diminished.

℞. Calomelanos, Pulv. Ipecac. āā gr. ii. Ext. Gentian gr. vi. ft. pil. iii. ter die sum.

30th. Buboes have subsided; sore on the ankle nearly healed; is very feeble. From this time he slowly regained his strength and was discharged, about a week afterwards.

Case 2.

14th. July, 1837. Diá Rám, a hurkaru in the service of Captain Richardes, Ætat. 24, was brought in this afternoon, from the village of Bándrá, distant 8 miles from Bálmír, having been bitten by a snake, between 8 and 9 o'clock the preceding evening. After the bite had been received, he drank several pounds of ghí which is here considered a good remedy; nothing else had been done for him. Two small punctures are visible on the inner side of the right ankle, discharging a thin bloody serum; the foot, leg, and lower part of the thigh, are much swollen, tense, hard, and exquisitely painful on being touched; respiration natural; face puffy and anxious; pulse nearly of natural strength, but rather quick; frequent clammy sweats, and urgent thirst. Since midnight there has been a copious *oozing of blood from the nose, mouth, and gums: the urine also appears to contain a large quantity of blood.* To take immediately. Vini albi-℥ii. Tinct. Opii. ʒss. Spirit Ammon. Arom. Spirit. Ætheris Nitrosi, āā ʒi. in aq. menth.

6. P. M. Feels easier, little or no pain in the leg. Pergat.

℞. Spirit Ammon. Arom. ʒiii. Tinct. Opii. ʒiss. Spirit Æth. Nitrosi ʒii.

Mist Camph. ℥viiss. St. ʒi. Sing. horis: hot fomentations. to the leg and thigh.

15th. A. M. Slept about an hour in the evening, and before midnight had taken 9 doses of the mixture, up to which time, no unfavourable symptoms had appeared. He was allowed to drink freely of cold water, or any other diluent he chose; he slept from midnight till 2 A. M. and on awaking, had an attack of syncope, which lasted for two or three minutes; between 2 and 6 A. M., five doses of the mixture were given; at 5 A. M. he had a copious natural stool, followed by another fit of syncope of three or four minutes duration. He now expresses himself easy; has no affection of breathing; countenance rather puffy and anxious; pulse weak, but regular; wishes for something to eat. Very little blood now comes from the bladder, and none from the nose or gums. To have a double dose of the mixture immediately in ℥iii. of sherry and to take the following draughts, with the occasional use of wine, according to the state of the pulse.

℞. Decoct. Cinchonæ ℥viii. Quininæ Sulph. gr. viii. Tinct. Aurantii ʒi. Spirit Ætheris Nitrosi, ℥ss. (an ounce every three or four hours.) The leg and foot are much swollen, and colder than natural, some small vesications have appeared round the wound, from which a thin bloody serum flows.

9 A. M. He continued much in the same state until 8 A. M. when according to the account of the assistant, he became suddenly moribund, with dilated pupils, and indistinct and fluttering pulse, and died before I could reach the hospital. It is however probable, that he expired in a fit of syncope; ℥vi. of wine and two doses of the mixture had been taken three days.

Since writing the above, I have been fortunate enough to see the first volume of the Bombay Medical Transactions, through the kindness of Dr. Kennedy, containing reports on the Kach and Kattiwar epidemics in 1817—20.

as also Assistant Surgeon White's report on that Márwár, 1836—7. That the two diseases are the same, does not admit of a doubt, and it is also probable that this malady has, at intervals, prevailed epidemically throughout Márwár, from a very remote period. In Mr. White's report it is mentioned, that records are preserved of its visitation at Soojut and Jodhpur, the one 12 miles east, the other about 30 miles north of Palí, and I was informed by a very intelligent 'gúrú of the Jaens, that, although it was a new disease to the present generation, *it had formerly committed great* ravages in Márwár."

[These extracts are from the excellent account of the Pali Plague vol. ii. Bombay Med. and Phys. Soc. Trans. 1839.]

COMMENTS.

The detailed reasoning, and specific facts upon which ORGANIC-BLOOD-DISEASE is proved to exist, will be found stated under the heads 'LOSS OR ABATEMENT OF THE BLOOD'S RESPIRING FACULTY,' p. 198*—and continued as indicated by the head lines as follows—

'*Blood vesicles the true respiratory organs.*' *p.* 197.*

'*Vital properties of blood diminished by lentor.*' *p.* 199.*

'*Blood, its states of deterioration. p.* 201* &c., &c., and especially in the cases of 'INDIAN TYPHUS,' given by me from p. 205* to 208*—taken in connexion with the cases and observations given from HUXHAM, and VOGEL, p. 209* to 212*, which abundantly prove 'THE DISSOLUTION OF THE BLOOD CORPUSCLES IN TYPHUS FEVER.'

Who can mark where typhus ends and plague begins? In what lies the distinction?

Who can tell where cholera ends and plague begins—or distinguish between certain forms of typhus and of cholera? On this subject the reader is referred to p. 212.* 'EFFECTS OF CLIMATE OR CONDITIONS OF AIR IN CAUSING FEVER AND PLAGUE,' *p.* 213* '*Air,*' 215* '*Black-hole of Calcutta,*' 217*, '*suffocation—choleraic state,*' *p.* 220* '*typhoid state,*' 222* '*gangrene or plague,*' *p.* 223*—and to '*diseases arising from impure air,*' *p.* 237, and lastly, '*the theory of putrefaction in living beings,*' *p.* 241*.

These specific facts and reasonings acquire I conceive great additional force by comparing them with the generic groups of pathological facts which constitute the history of great pestilences. The admirable account of PLAGUE OF INDIA, as quoted above from DR. FORBES, and by him contrasted with 'snake-bite:' and by myself with the history of other pestilences, seems to me to afford a clear induction that we must refer the disease TO ORGANIC CHANGES OF THE BLOOD CORPUSCLES.

The Pali Plague itself presented all varieties of plague known *but one,* GUIDO said of BLACK DEATH, in which the breath at one time was infectious, " it took its rise from the Indies." According to the view which I have taken of infection such a condition of breath, could only result from *putrefaction of the blood,* the *last* degree of *organic* degeneration. '*Snake-bite*' presents us with the *first* degree of organic change, in which the blood corpuscles are perhaps simply burst. Typhus, and scurvy most likely, are intermediate grades of *organic change in the blood.*

FUNCTIONAL-BLOOD-DISEASE.

CHOLERA.

In speaking of FUNCTIONAL DISEASE OF THE BLOOD I shall here confine myself chiefly to Cholera and its varieties—

Much of the mystery, obscurity, and terror which attach to the consideration of cholera asphyxia, result from its being regarded at first as an entirely new, unheard of malady, unlike any other disease, and would diminish if we observe it in these points of view,—

1st.—That it is no new disease, but as old as India, China, or Greece.

2nd.—That it is not always the same in its nature and effects, and

3rd.—Is allied by its varieties to some of the most desolating pestilences ever recorded ;—as well as to most common diseases.

1st.—*That it is no new disease* is proved by the accurate accounts of it which I quote below from HIPPOCRATES, the oldest Greek writer, from WHANG-SHOO-HO, perhaps his contemporary in China ; from SUSHRUTA the greatest Hindoo authority in medicine, and from ALEXANDER TRALLIANUS ; these two last physicians were probably contemporaries also. They may have both lived in the first half of the 6th century. ALEXANDER practised chiefly at Rome. Lastly the well known description of our own SYDENHAM in 1669 —vide THOMAE SYDENHAM, M. D. *Op. Universal. Lond.* 12° 1685, p. 176.

CHOLERA IN ANCIENT GREECE.

" Quidam Athenis *cholera* correptus, tum vomebat, tu infra demittebat, & dolorib, coflictabatur, ac neq ; vomitio neq ; alui deiectio sisti poterat, *voxq ; defecerat,* nec lecto moueri poterat, *oculi caligine obducti & caui, convulsiones detinebant,* quæ ab intestinis profectæ ventriculú occupabant, & singultus. Quod ex aluo secedebat, vomítione longè copiosius erat. Hic epoto veratro cum lenticulæ succo, etiam insuper alterum lenticulæ succum pro viribus ebibit, ac tandem post vomitú ei ambo coacta sunt & suppressa, *verum perfrigescebat.* At calida admodum multa lotus est à pudendis deorsum, in tantum ut etiam superiora incalescerent, & vixit. Postridie verò polentam sumpsit." HIPPOCRATES COI, *de morb. vulg.* lib. v. Sect. vii. fol. 1144. Edit. Fol. Francofurti A. D. 1624.

CHOLERA IN ANCIENT CHINA.

* " Ho-lwan or Cholera Morbus, is described by WHANG-SHOO-HO, and other early Chinese medical writers at least as early as Hippocrates ; and the translations which I shall subjoin will shew, that the disease has been noticed in its worst form in China before its recent appearance in India as an epidemic.

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* KURB SPRENGEL assigns A. TRALLIANUS to 543 A. D. BENTLEY assigns the Mahabarata to the 6th century. In the Mahabarata the name of SUSHRUTA occurs.

Extracts concerning Cholera Morbus, from a Chinese medical book CHING-CHE-CHIN-SHING, *printed about* 1790, vol. iii. page 26.

"The Ho-lwan (Cholera Morbus) is a sudden attack of pain in the heart and abdomen, with vomiting and purging, a dread of cold, and desire of warmth. It is accompanied with pain in the head and giddiness. When the pain attacks the heart first, vomiting comes on first; when the pain commences in the abdomen, the purging precedes. When the pain in the heart and abdomen synchronize, the vomiting and purging come on at the same time. When the disease is severe, the patient has spasms; and when these enter the abdomen, death ensues.

"This disease prevails most between summer and autumn: although it exists in the cold months, it often arises from an attack of extreme heat. The Cholera, from extreme heat in summer, consists of vomiting and purging; a twitching pain in the heart and abdomen; great thirst; a troublesome burning, parchedness; the extremities convulsed; a cold perspiration, and spontaneously ensuing spasms in the limbs. The Mungkoo Tartars are attacked with Cholera from drinking liquor, eating flesh, and drinking milk. In the summer months, people eat melons, &c. drink cold things, and expose themselves to the wind, which induce indigestion, obstructions, and Cholera. In Cholera, where there are spasms, vomiting, and purging, giddiness in the head, and confused vision, it becomes instantly incurable."

"A great proportion of the cases of Cholera Morbus which have come under my care were, at the time of the attack, in small ill ventilated apartments, commonly on the ground floor. I have observed, that those who slept in beds sometimes escaped, while those who lay on the floor, on mats and the like, in the same apartment, had the disease in its worst form; from which I am induced to infer, that sometimes the morbiferous cause does not rise many inches from the ground. This may be considered to be a species of Malaria. Such a view may, I hope, suggest some preventive means: such as free ventilation, excluding the night wind, sleeping on beds sufficiently high, covering the body, &c. &c.*

CHOLERA IN ANCIENT INDIA.

"*Bisúchika*, (Cholera.) The person first feels pain, as from indigestion, in the abdomen, followed by frequent stools and vomiting, great thirst, and pain in the abdomen, fainting, giddiness, yawning, and cramps in the legs. The colour of the body is altered, accompanied with shivering, pain in the chest, and head-ache. The unfavourable symptoms of cholera are, the lips, teeth and nails become blackish, the person insensible, with frequent vomiting. The eyes become sunken, voice feeble, and the joints loose, with great debility. Such a person may be taken out to be burnt, as he will not recover. The most fatal symptoms of cholera are, want of sleep, restlessness, shivering, no secretion of urine, and insensiblity." SUSHRUTA.*

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* For the Chinese extracts I am indebted to my friend, the Rev. Dr. Robert Morrison. Obs. on Epidemic Cholera by J. Livingstone, M. D. Trans. Med. Phys. Soc. Calcutta vol. i. 1825 p. 205.

AETIUS ANTIOCHENI, said to have lived in the early part of 4th century "ut alter *Antiochenus.*——sub Constantino vixerit," A. D. 307, thus speaks of it.

Cholera Appellatur quum ob multas cruditates, vomitus biliosus et nidorosus et acidus oboritur, ad plures horas continue perseuerans et venter inferne eadem excernit: *sequĭturq: sitis et exudatio et empeditus pulsus, musculorumque manuum ac pedum, maxime verò surarum contractio et tensio.*" *Serm* IX. *Cap.* XII. *Edit. Fol. Venet.* 1534.

DE CHOLERA, CAP. 16. *(In the Roman Empire.)*

"Quòd Cholera sanè acutissimus sit affectus, syncopen insignem, immodicamque virium resolutionem inducens, omnibus in confesso est. Idcirco accuratè internosci, et celerrimmè curari, meritò postulat. Etenim dilatio in omnibus acutis morbis nociua est: in hoc autem affectu etiam exigua, ac leuis curandi mora, haud simplicem offensam, sed etiā absolutā subindè tabé, quæ Phthisis dicitur, conciliat. Cholerā itaque immoderatam esse perturbationem, quæ per aluum, et vomitum propter stomachi subversionem, offensionemque; proueniat, intelligendum est. Ne autem quis affectum hũc ideò Cholerā vocari putet, quòd à bile omnino fieri cósueuerit, sed quia materia, quæ per ventrem adfertur, ex intestinis videtur excerni: intestina verò choladas veteres appellabant, vt etiam Homerus testatur his verbis. *κέχυντο χαμαὶ χολάδες*, quod est, fusa erant humi intestina, huius gratia etiam affectum Choleram nuncuparunt. At nŏ solum de vna fit causa sed etiam multis: nempe ob copiosiorem cibum assumptum, et quia concoqui non potuerit, corruptum: item ob prauorum, humorum, aut ciborum aut potionum, præsertim stomachum offendētium qualitatem, qualis est et pepon, et pingues, dulcesque, et oleosi cibi. Gignitur etiā ex copia bilis naturam sursum, aut infra ad excernendum irritantis: nec nŏ ob nonnulla frigida applicatà, vt epithemata quædam, aut frigidarum aquarum vsũ, si eas bibant, aut in eis diu natauerint. Que cum ita habèant, necesse est etiam de curatione tractare, quæ ad vnamquamque; huiusmodi causam accommodetur." *Alexandri Tralliani,* lib. vii.

I. *These examples may suffice to shew that Cholera is no new disease. The last is most interesting shewing that bilious cholera was not the disease indicated.*

II. *That it is allied by its varieties also to most mortal pestilences as well as to common diseases,* we shall, I think be able to shew, by citing examples of different varieties of the disease observed in INDIA; but it is necessary to preface a few words upon its essential nature, in order to understand more fully the grounds upon which I conclude these forms of disease to be varieties of cholera.

As respects cholera asphyxia, hill colic, (or dry cholera) the sweating sickness, and other analogous diseases, it has long been a desideratum, to find out a cause capable of explaining all their peculiar phenomena. I must now submit that in the arrest, or loss, of endosmotic function in the pulmonic cells primarily*, and subsequently of the blood cells, we have really found that first point of departure, whence we may progressively trace onwards, all those functional deviations from the healthy action of the animal fabric, which are universally assembled, and most completely developed in cholera-asphyxia. The theories hitherto propounded, to account for cholera are manifestly inadequate to explain all the principal things that we observe. Thus to say, "the essential cause of cholera is distention of the gall bladder by dark ropy bile, the ducts being most probably affected by spasm,"† is, as a theory, insufficient even to explain the absence of bile in the evacuations; besides we have instances in the museum, of the complete obliteration of the gall bladder and gall duct, unaccompanied during life with any symptoms of cholera; but the bile being a secretion, will necessarily be stopped, as well as the urine, and every other secretion, by the all pervading cause, to which I have referred it. Another theory which has lately been revived in Calcutta, makes the essential cause of cholera, to consist in regurgitation of chyle from the lacteals. In Dr. Maxwell's work upon cholera, published six years ago, this theory was disproved, he says "that the choleraic exudation does not originate in an inverted action of the lacteals, as some have conjectured; for, independent of its being very abundant in the stomach and large intestines, where there are few or no lacteals, it *has very little resemblance to chyle*."‡ But not to say that all the chyle that ever was formed from the largest meal would not suffice to produce the quantity of matter, which is often discharged in a single true cholera stool: not to say that cholera generally begins at a time when the lacteals are empty, namely, four o'clock in the morning;—and not to speak of the inadequacy, even if it did occur, to account for the disease, the *thing is anatomically impossible*, owing to the position of the many valves of the lacteals, which would not permit any matters to regurgitate (I have tried to force the chyle back from the lacteals of a dog, but could not without bursting the valves.) This theory moreover is subverted by the proofs which we now possess of the lacteals having closed extremities, if chyle ever do exude from them it must be by that inversion of endosmotic action, that filtration outwards, which explains also the cold clammy sweats. Again the mere physical thickening of the blood cannot be the cause, nor the loss of its more fluid portion the watery, explain it. Every one of these, which are only effects are comprehended, and accounted for, in the explanation which I have ventured to give in referring it to loss of endosmotic faculty in the blood vesicles. (see p. *221.)

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* DR. WISE's Hindoo System of Medicine, p. 330. I have been assured by a learned Pundit that this Extract is from SUSHRUTA, but I wish my friend DR. WISE had always cited his authorities,—it would have added greatly to the interest of a work, for which the profession in India should feel most grateful.

In the following remarks made at a Meeting of the Calcutta Medical and Physical Society, January 1844, I conjectured some such common cause might be found, but I then conceived, that the organic nerves might be the primary agents, whereas I do not think now, this necessarily follows. Nor do I now think that the effects of snake bite, nor of hydrophobia even, are inexplicable without resort to deranged innervation. In the discussion alluded to I said, "But admitting absence of bile as one feature in a disease, which began like death, in the arrest of all animal heat, all secretion, all absorption, and sometimes nearly all circulation—for such is cholera, we should endeavour to reach a still higher link in the chain of causes.

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* Dr. Copeland Dict. vol. iii. p. 99 refers it to a poison on the extensive surface of the Bronchiæ and air cells," hence to the *nerves*, not the blood. Dr. Green (vol. vii Med. Phys. Trans. Cal. p. c. c. lxxix. appendix.) and Dr. T. Mouat, on epidemic diseases (Trans. Med. Phys. Soc. vol. vii. part ii. p. 337.) In this country, refer it to the Nerves first thence to the blood vessels not the blood.

† Dr. Finch and McGregor Ind. Journ. Med. Phys. Science Jan. 7, 1844.

‡ Op. Cit. page 17. Appendix.

The most uniform, the most manifest, the most constant, nay the only invariable feature is the alteration in the blood. It is always black, always thick and tarry, and *never coagulates.* Now this very property of coagulation was long since fixed upon as manifesting its vitality. In cholera such evidence is lost, and why, because of this most *essential of all changes the death, or beginning of death in the blood.* The watery discharges from the stomach and bowels cannot be essential, for in the worst cases they are not met with. Any treatment, therefore, having for its object to restore by mechanical admixture what the blood has not lost, cannot avail. Spasms of the voluntary muscles, or cramps are not essential, for the disease may exist in the most fatal form without them, or only in a trifling degree. Besides none of these can explain the cold glacid sweat, colder than the surrounding medium, the cold tongue, the cold breath. We must proceed further. *We may understand that like as modern discoveries have instructed us in the rapid transmission of living action, by means of living blood vesicles floating in a living plasma ; so may we conceive of rapid transmission of morbid action hurrying on the system to universal death. The blood vesicles are* the carriers of oxygen, they give out or induce animal heat in their transit throughout the body ; whilst the plasma renews the wasted structures. *Admit a cause* (general asphyxia of blood corpuscles) *capable, like the bite of the rattle-snake, of suddenly affecting the whole of the blood with disease or death, and we rise at all events nearer to that we seek.*

I believe that in the action of sulphuretted hydrogen inverting the endosmosis of living animal cells and membranes, we have found one sufficient cause although perhaps not the only one. For Professor MATTEUCCIS experiments upon the blood, shew the persistent nature of its effect, rendering death certain if it remain long enough. *The mere cessation of endosmotic function in the blood vesicles is the cessation of life.*

The production of cholera by the agency of sulphuretted hydrogen is maintained in a very interesting work by DR. SEARLE, a work for which the medical service in INDIA is indebted to the liberality of the Honorable Court of Directors ; but DR. SEARLE has stopped short in his explanation of the disease at the mere congestion of the vessels ; whilst I go on to the blood corpuscles. It is curious to see the very different rules of practice we have deduced. In the Indian Register, Part II. p. 103, they are thus contrasted.

Dr. Searle's theory and practice may here be contrasted with the theory and practice of Professor Webb.

Dr. Searle says, p. 126 :—	Professor Webb maintains that :
"All disease is intrinsically and essentially of the vascular system."	"Cholera consists, in general loss of the endosmotic faculty of the blood vesicles, and of the membranes and tissues, and consequent filtration outwards.
In Cholera. "Vessels from their engorged state and extreme fulness exude or pour out into the bowels, the aqueous parts of the blood, (p. 43)."	"Endosmosis ceasing, all vital operations depending upon endos-

"*Hence* The evacuations which attend the disease are without question curative efforts of the system, in relief of the distended vessels of the stomach and bowels, and tend to expel the poisonous cause."

Ergo, the practice is, Bleeding.

Calomel in scruple doses, and no Opium.

mosis cease also.,

Ergo, the practice is,—restore the normal state to the blood membranes and tissues, and restrain by Opium, the mechanical filtration outwards.—For Professor Matteucci, by experiment has shewn opium to have this curative effect, an effect directly opposed to that produced by the exciting cause of the disease, sulphurretted hydrogen.

"As Dr. S.'s book will be in every one's hands, we cannot let this number of our Journal go forth without suggesting a caution to the younger medical officers of the army how they take Dr. Searle as a practical guide."

Again the same journal vol. III.—

"Professor Webb in his Pathologia shews how death and disease enter most certainly and fatally by the lungs into the blood by the agency of the endosmotic action of the air cells. The phenomena of chloroform would seem to shew that remedies also enter best by that channel." p. 205.

CASES OF CHOLERA TREATED WITH CHLOROFORM.

By. Dr. Maxton, *Police Surgeon.*

Case. I.

"Putteet, a bearer, aged 24, was admitted into the Police Hospital, Calcutta about 9 A. M., on the 21st March, in the last stage of cholera spasmodica. —The eyes were sunk. The pulse not perceptible at the wrist—profuse, perspiration—skin cold, clammy and the fingers shrivelled—spasms general and severe.

The remedies usually most successful in this city in such cases were given, as calomel and opium, stimulation and antispasmodic draughts, and sinapisms to the calves of the legs and epigastrium, but without any effect in inducing re-action. 10 A. M. spasms extremely severe, pulse not perceptible. One fluid drachm of chloroform was now administered by inhalation. The spasms immediately ceased, and the pulse rose rapidly to 104, with considerable volume. The general effect also was wonderful. The perspiration ceased, and the skin became gradually dry, and in some degree warm.

The patient however did not remain fully under the influence of chloroform longer than five minutes.

11 A. M. Pulse small and hardly perceptible, slight spasms of the lower extremities returned. One drachm of chloroform was again administered, and again re-action almost instantly followed, pulse distinctly counted—102.

12 A. M. The chloroform was repeated, and apparently with good effect. Appearance more natural. Some oppression of the chest, apply a large sinapism. 1 P. M. Going on favorably.

An enema of castor oil and turpentine was administered, and two purging pills.

5 P. M. Doing well, two motions of a dark green colour.

10 P. M. The enema and pills were repeated.

22nd. Requiring more purging. Some castor oil, and oil of turpentine in cinnamon water given.

23rd.—Feverish, calomel six grains with a little antimonial powder, and saline draughts.

24th.—Still feverish, continue salines.

CASE. II.

Shaick Doohey, a garrewan, aged 26, was admitted into the Police Hospital, Calcutta, about 4 P. M., on the 23d March, with the worst form of cholera spasmodica, the symptoms similar to the case related above. The same remedial means were used as in the former case, and with a similarly striking and prompt benefit. The only difference in the treatment was that half a drachm of chloroform only was inhaled at a time, and the dose repeated every hour for four hours, by which time re-action was complete.

24th—No relapse, the patient is going on favorably.

25th.—Feverish.

Remarks. It should be noted, says Dr. Maxton, that these cases *were of the worst type of this deadly disease.* His impressions of the power of the remedy over the state of collapse are very strong.

He writes " Should slight congestion of the lungs supervene I would recommend a large sinapism to the chest. as in the case of Putteet, and repeat it if necessary. So great is the tendency to congestion after cholera that we ought to be well on our guard against this symptom, also to watch the operation of the remedy during the time of administration. I do not consider Putteet as out of danger, but am desirous at least to make known the power of chloroform over the state of cholera collapse, and cholera spasms. I would suggest extreme caution as to the doses."

ORIGIN OF CHOLERA.

Cholera may however approach typhus and plague in its character on the one hand, and colic, and sweating-sickness on the other. I will adduce examples of these transition-forms of epidemic diseases, which yet are essentially the same disorder of the blood ; the blood corpuscles having their vital endosmotic action reversed :—general filtration outwards, or the passive flow of vital fluids from the skin and bowels, is originated. They have all a common origin in bad air. The country whence these diseases have spread abroad, abounds in sulphuretted hydrogen of telluric origin, as in SIRHIND, RAJPOOTANAH, MARWAR, and the whole of SINDH. I was assured by Mr. Conductor May, of the Hon'ble Company's Artillery, that in the hot weather of 1819, at Kurnaul, the Artillery-men used frequently to lie down on the ground for coolness in the evening, and were often conscious of bad smelling air issuing from the soil ; which being breathed for a few minutes only, the men would turn blue, and did not regain their colour, unless speedily made to vomit, and take largely of spirits. That was *their* treatment. He did not know of any dying in this state. It happened so often that the men used, on perceiving the smell, to look about on the ground and often found out the little hole in the soil whence a jet of stinking air was issuing."

CHOLERA IN SCINDE.

Dr. Kinlock Kirk says "It is unquestionable that mephitic air is ever escaping from the rocks at Sukkur, but, because we may stand on their summits, and not perceive this, some may be inclined to question the accuracy of the statement." Again "we have sulphates formed and forming ever under ground, while sulphuretted hydrogen and carbonic acid gases are being disengaged."

Cholera may be so rapidly mortal as to destroy in two hours, this I have been assured by those who survived, was the case in Scinde in very many instances. Its devastations at Kurrachee were most appalling; 1500 of the troops were carried off in July 1846, *in nine days;* of these 890 were Europeans.

CHOLERA AT SUKKUR. *(Arising from Sesmaria.)*

"During the hot weather of 1845, cholera visited Sukkur and many other parts of Sindh with much severity. In the Cantonment Bazar as many as thirty or forty people were dying daily for some time. The disease was of a more severe kind than any I had ever seen, consisting only of a direct collapse, without spasmodic pains in the limbs, and the passive flow of the vital fluids from the skin and bowels. In fact these are but effects of the disease, effects requiring time to become manifest. The attack was as insidious as it was dangerous, and some patients I saw presented no symptoms to excite alarm even in themselves, but lay in that quiet state which would have followed the withdrawal of their blood in small successive portions. Even among those who recovered there were evident symptoms of apoplectic complication; and inflammation of the brain, with slight accompanying fever, carried off many, who had successfully wrestled with cholera.*

(It appears to me impossible to account for this most fatal plague, except upon the supposition of loss of endosmotic faculty of blood. A. W.)

TYPHOID CHOLERA IN CALCUTTA IN 1840. *(Arising from Malaria.)*

By Duncan Stewart, Esq. M. D. from vol. viii. Trans. Med. Phys. Soc. Cal.

During February, and up to the present time, the disease has been greatly on the increase, three or four applying daily at the dispensary for relief: and of these, the great majority too late. The same observation as to the hour of the night, and the character of the seizure, continues to apply. The vomiting is *often entirely wanting; not more than one in five has cramps and perhaps there has been but one watery stool.* The prevailing character of the disease, as seen by me among the native community in all parts of the town, has been extreme nervous depression, and early failure of the vital powers, indicated by a cold clammy surface, pulselessness, a cold tongue, with eager thirst, laborious breathing, and restlessness. Many patients have lived for 24 to 48, or more hours in this precise condition, perfectly sensible, and submitting to all appliances and remedies with composure and confidence, but without the slightest re-action coming on.

Among the European community coming under my observation, the worst cases have occurred since the middle of February.

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* Med. Topography of Scinde by Dr. Kinloch Kirk.

The disease has been in a few cases rapid and fatal. *It is characterised more by the absence of the violent symptoms, such as the spasms, the prolonged retching, the unconquerable thirst and continued watery purging, which were the symptoms of cholera in former years.* In all, the *collapse* occurred early, i. e. within three or four hours of the seizure, and unless remedies had been *previously* given, this, I regret to say, has been insurmountable.

In one or two cases the fatal termination has ensued within six hours of this symptom, in others, life has been protracted for 36 hours. But I have not been so fortunate as to see a single case recover where the pulse at the wrist and humeral artery had once ceased to be felt.

Some intances of striking coincidence of circumstance have come under my notice this season, which I know not how to account for. In one family, four individuals were seized with unequivocal symptoms of cholera, about the same time in one day—all recovered.[*] In another family, two children were seized about the same time with similar symptoms, and a third individual of the family less severely.

Of the remedies employed in these cases, I need only say that we have this season been more sparing of *calomel* in the first instance, than formerly. The object appearing to be to sustain the strength,—to support the fast-failing powers of life,—to arouse the sensibility of the nervous system, and to maintain the circulation of the blood, by stimulating the action of the heart and capillaries.

A peculiarity of the epidemic, this season, has yet to be mentioned, which I have not before observed in India; viz. the tedious convalescence, and low *typho-gastric* fever, which frequently ensued;[†] the term I have here used may convey an idea of my meaning. The patients *for eight or ten days after recovering* from the immediate dangers of cholera, continued in a febrile state, with great prostration of strength, restlessness, tender epigastre; an inelastic abdomen, hotter than natural, deficient secretions, of urine, of bile, and all other alvine secretions, a dry and glazed tongue, with generally a rapid small pulse. It is needless to say that these symptoms were treated on general principles, by leeches, blisters, calomel, opium, ipecacuanha and purgatives, &c.

Among natives and debilitated persons, who cannot bear the least depletion, who continue for days to present a hard glazed red tongue, with depraved acid, and colorless thin alvine evacuations, much benefit has been derived, and I have seen some wonderful recoveries from the persevering use of sodæ carbon, in large doses, with rhubarb and ipecacuanha; the only sustenance allowed being iced barley water, in small quantities at a time."

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[*] NOTE—An instance was reported to me of two children in one family being seized with cholera whilst the father, a clergyman, was at Church—both died. Before leaving home the father had remarked the *depressing effects of the bad air at* his house, A. W.

[†] I have seen two instances in children wherein the typhoid fever after cholera was shewn after death to have produced ulceration and thickening of the glands of PEYER. The blood examined by compound microscope in one instance shewed the blood corpuscles arranged in "rouleaus" like rupees one over the other.—A. W.

THE CHOLEROID-COLIC OF THE HYMALAYA.

(DRY CHOLERA OF SYDENHAM.)

By Allan Webb, Esq.[*]

This is a very fatal, and also a very common disease at Simlah. It appears to partake quite as much of the nature of congestive cholera as of colic, and is sometimes associated with inflammation or excessive congestion of the mesentery immediately surrounding the glands, and also with congestion of the mucous surfaces of the bowels, or even with inflammation.

The seizure is always sudden, characterized by great pain in the bowels, which induces the patient to roll on the ground, and keep the hands firmly pressed upon the abdomen. The expression of face is anxious and peculiar; the eyes sunk; the skin *cold or cool;* the tongue cool; the pulse sunk; the urine arrested, and there are no stools. If no relief, the symptoms of congestion increase; the pulse is lost; the belly becomes hard, tender, and swollen. The patient's shrieks are converted into low moans. No blood can be obtained by venesection, and the patient dies;—the mind and muscular powers keeping their force unimpaired to the last. Sometimes there is vomiting, and occasionally spasms also, as in cholera; perspiration rarely occurs till the last, and then it is cold.

Prognosis.

This is favourable, if re-action be fully and early set up, if stools be procured, and the secretion of urine return. If however re-action have been long in setting in; it is then followed by severe fever, with determination to the head, and to the mucous surfaces of the bowels, &c. If seen early, the disease may terminate favorably in twenty-four hours; if prolonged beyond this time without relief, it is generally fatal. Even if the patient do recover, the subsequent debility is great, and convalescence is protracted.

The Morbid Appearances.

These have not been uniform, in the cases which I have examined, but I will select the following as most characteristic. In the ecchimoses noted about the mesentery it assimilates to the prevailing typhus, although these ecchymoses are found also in Cholera.

[NOTE—I regard it is a connecting link between these two diseases, they meet in the essential morbid change, that of the blood corpuscles asphyxied.]

Head.—Brain and its membranes healthy.

Chest.—Lungs, pleura, and bronchial lining membrane healthy.

Abdomen.—Stomach dotted all over upon its mucous surface with black sooty-looking thick ropy mucus. *Duodenum* presented patches of ecchimosis; *mesentery* redder than natural; a vivid red line at its junction with the intestine; ilium of a dark red colour from congestion; mucous lining softened; no lymph effused; *upper part filled more or less with black sooty*

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[*] Vol. viii. Trans. Med. Phys. Soc. Calcutta.

secretion, without a trace of bile; perfectly inodorous, and very like the black vomit of yellow fever. There was little of this in the lower portion where the injection had reached. *Cœcum* outside had a puckered-up appearance. Inside its mucous surface was slightly eroded. *Bladder* contained a small quantity of dark-colored urine. *Spleen* enlarged. *Liver* congested; *abdomina veins distended with dark tarry blood, without any attempt at coagulation.*

General appearance.—That of robust health; muscles finely developed.

Causes.

It seems to have its origin in malaria. At one time I considered bad grain to be instrumental in its production. But the servants of gentlemen, who lived differently from the Puharrees (Hindoo Mountaineers) and could afford the best grain, were equally subject to it, with those poor people; and others, as butchers who fed much upon meat, were equally, with the pure grain-eaters, among its victims, if they came from a particular locality, which locality *was the same as that from which the worst typhus cases came.*

Its mode of action also, like that of this subtle agent malaria in other diseases, is more or less sudden and extreme depression of the powers of life, as shewn in the respiratory system, where the digestion (if I may so speak) of the air is arrested, no arterializing change, or a very imperfect one, takes place; and there is no elimination of heat. The tongue even, becoming very soon cold or cool, and the mucous surfaces of the stomach and *bowels performing an office vicarious with that of the lungs,* as shewn by the *carbonaceous or sooty secretions.* It strikes more particularly the operations of life by inducing loss of endosmotic action of the blood corpuscles, not by paralyzing the sympathetic nerves as I once suspected, the consequence is the arrest of almost all secretion, urine, sweat, bile, and digestive matters.

TREATMENT.

That which I found most effectual, indeed so much so, that I could confidently trust to it, in the hands of the Native-doctor was—

1st.—Hot bath for twenty minutes—2nd, bleeding afterwards, to an extent regulated by the pulse—3d Sinapisms to the abdomen and feet—4th, Calomel ℈j, opii. gr. iii, followed after an hour by—5th, an enema; ol. terebinth. ℥i, ol ricini ℥ii to ℥iv, mixed with yolk of egg, to which G. assafœtidæ ʒi was added; and from two pints to six pints of conjee. This enema to be repeated every 4 or 6 hours, when if stools be procured, it is omitted, and a mixture given instead. *Mixture.*—Ol. terebinth ℥ss, ol. ricini ℥iv, vitelli ovi q. s. aquæ ℥iv. Dose ℥i. or ℥ii. every third hour.

Its diagnosis from peritonitis or enteritis is sufficiently easy, there being no stage of exitement. From cholera it is not so easy; there are however no discharges from the alimentary canal. But I do not look upon these, as essentially characteristic of the worst forms of congestive cholera: indeed there is much in the disease very much like cholera (probably only a variety). The peculiar character of Hill Colic is, however, the excruciating pain in the abdomen, sometimes so severe, that the patient is not conscious of any thing else, and one agonizing shriek follows another, till the strength is exhausted, and low moans express his last sufferings. The prevailing belief among the Puharrees in the hills is, that it is a demoniac seizure, and that the evil spirit springs suddenly upon the unwary, from dark thickets, and shady fountains and water courses especially. These last are full of decayed leaves and putrid water. (It is worthy of remark in reference to my opinion of its malarious origin, that men in perfect health, go to these water courses (as to necessaries,) come back asphyxied with colic.) Nearly all cases with them are fatal: their treatment being to get five or six strong lusty fellows to shake out the devil, and frighten him by loud cries.

[I will now bring forward four cases, and a short analysis of 7 or 8 more for consideration.]

Case I.

Narroo, cooly, age 30, admitted September 2nd, 1840, at 8 A. M. He was attacked at 5, or three hours ago; rolls upon the ground with the pain in his belly; abdomen swollen; skin generally cold; face anxious. Pulse weak and soft; no stools; no urine to-day.

Hot bath 20 minutes—Venesection to xx. ounces—calomel et opii aa gr. iii. now.—At 12 o'clock, ol ricini ℥iss.—Passed catheter, but no urine in the bladder—Sinapisms to stomach.

September 3rd.—Quite well; discharged; cured.

Case II.

Second case also very slight. Gokula, dhobee, (washerman) living at Simlah, admitted September 3rd, 7 o'clock morning. Attack was sudden on first going out at 6 to the water course; pain increased till 8; at which time his face was anxious; eyes sunk; belly swelled, hard; in great pain, which caused him to roll about on the floor. Pulse weak; skin cold.

*Treatment** 8 *o'clock.*—Hot bath; venesection (only ℥vi procured, blood trickled down like thick tar); calomel. opii. a. gr. iii; colic injection Ojj. and ol. Ricini ℥i at 1 o'clock.

1 *o'clock Report.*—After injection passed urine and fœces with much relief.

7 P. M.—Some return of pain; croton pil. ii. with relief.

September 4th.—Had two stools at night; is quite well and hungry; ol ricini ℥i. *5th.*—Three stools; *evening* discharged, well.

The two next cases are of a much graver character.

Case III.

Bahadoor, butcher, aged 40, living at Simla; admitted July 8th, at 7 o'clock in the evening.

Nat. Dr.'s Report.—No stools to-day; vomited once; pulse very weak skin cold; *eyes sunk as in cholera;* pain in belly very severe.

July 8th, 8 P. M.—Hot bath; venesection, ℥vi only procured; blood like tar would only flow in drops, sinapisms to feet and abdomen.

9 P. M.—Ol. ricini ℥iss. tinct. opii. *m.* x.

10 P. M.—Rept. injection Ojj.

Calomel ℈ss. jalap ℈i.
Colic injection Ojj.

Had one dark, nearly black-coloured stool, half an hour afterwards.

July 9th, 8 A. M.—Better; pulse slow, 54; skin warm; belly swelled, but soft; face less anxious; eyes less sunk; vomited once, green bile; passed urine, red colour; extremities cold.

Hot bath—Brandy ℥ss in hot water—Calomel ℈j. opii gr. i.—℞ ol. ricini ℥iv.—ol terebinth ℥i—Aquæ ℥iv. *mixed* with yolk of egg. *Dose* ℥j every two hours—Repet. Injection.

12 A. M.
Brandy and hot water,
Colic Enema 6 pints.

In more pain, weaker, slight dejection, and some little urine passed after the enema; has taken mixture every two hours.

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* CHLOROFORM would probably cure instantly.

9 P. M. I was sent for to the hospital ; man suffering from agonizing pain ; but on my arrival found that a copious dejection had just come away with great relief, although chiefly injection, but little fœces ; skin warm ; pulse weak, 78 ; tongue moist, *cool* ; thirst excessive ; respiration 25 ; abdomen painful on pressure. Character of fœces mud-like, without bile.

Leeches xij to belly. Calomel ℈j. Opii, pulv gr. iv. Brandy every three hours.

11 P. M. Passed one very black and offensive stool with great relief.

8 A. M. *July* 10*th*.—Slept well all night ; swelling of belly less, no pain ; belly soft ; urine twice ; stools of a dirty slate colour, mixed with injection ; skin warm, pulse soft and full ; tongue moist ; (has had brandy 3 times.)

℞ Calomel gr. x. Jalap gr. xii. Ol Anisi gtt. ij. Ol Ricini ℥i. at 12 o'clock.

12 A. M. Feels very weak ; has had two dark-coloured stools Brandy and sago repeated every three hours.

12 P. M. Some return of pain in belly ; pulse very weak. (*Rep. Med.*)

8. A. M. *July* 11*th*.—Sitting up ; much better ; skin warm ; pulse weak and soft ; tongue covered with grey fur ; feels hungry.

Brandy and Sago.—Ol Ricini ℥i. 8 A. M. Passed three greenish stools, and some red-coloured urine.

Brandy and Sago. *July* 12*th*.—Convalescent.

July 13*th*.—Discharged.

Case IV.

Eidoo, Bheesthee, (water carrier) aged 25, living at Simlah, admitted July 13th at 2 A. M. with intense pain in the belly, which is swelled and hard. The attack was sudden, at 11 last night, and the pain has continued since. His eyes are sunk, as in cholera ; skin and extremities cold ; pulse scarcely perceptible ; has passed no urine since the attack.

2 A. M. *Ordered. July* 13*th*.—Hot bath 20 minutes. Mustard poultice to epigastrium. Calomel ℈j. Opii gr. j.

3 *o'clock*—Skin being then warmer ; venesection ad ℥xij.

Calomel ℈ss., Ant. Tart. gr. ss.—Pulv. Jalap ℈ss.

6 A. M.—Same state. Colic Injection Oiv.—(Terebinth. et Ol. Ricini).

8 A. M. *Visit.*—Is resting upon his elbows and knees, shrieking piteously ; countenance very anxious ; skin warm ; pulse feeble ; belly excessively swollen and hard ; frequently jumps out of bed in a frenzy from pain.

Congee Oii. Ol Terebinth ʒii. Ol Ricini ℥iii. Assafætidæ G. ʒii. Given immediately, as an enema, seemed to ease him for a time, whilst retained. The pain however soon returned again.

12 *o'clock.*—No relief.

Colic mixture—Hot Bath. 4 *o'clock.*—Pain if possible worse ; has vomited three times since 8 A. M. ; tried to abstract blood.

V. S. only ℥iii procured. 10 P. M.—The man now is quiet ; eyes more sunk ; no pulse at wrist ; extremities cold ; voice still strong ; breathing laborious ; belly swollen and hard.

Repet. Sinapisms—
Enema (six pints).
Calomel ℈ss.

Gave hot brandy and water every quarter of an hour.

Rub Turpentine over abdomen. Cover him with hot blankets.

1 *o'clock.—No improvement.*

Enema vi.

3 *o'clock.*—Same state.

Enema vi.

5 *o'clock.*—Rigid spasms came on in all the limbs accompanied with much pain. (*He looks like a man in the collapse of cholera.*)

6 *o'clock.*—Same state.

8 *o'clock* Enema vi.

Sinking fast; eyes deeply sunk, *tongue cold;* surface cold; (no pulse; respiration 56; laborious vomits occasionally, and jumps out of bed; no urine since admission.

12 *o'clock.*—Died.

Autopsy.—This was very hastily done, for the people had a strong objection, and the Hill-side when I reached the hospital was covered with angry Mussulmen.

Head.—Not examined.

Chest.—Shewed old adhesions between the pleura; right side of the heart, and great vessels, gorged with black blood, (*precisely like cholera.*)

Abdomen.—Immediately on being opened—the small intestines, literally *from excessive congestion red as blood*—and much distended with gas, started into view. The mucous membrane was dotted with the small elevated white points the orifices of enlarged mucous glands. Erosion of membrane had taken place here and there especially near the cæcum. This mesenteric glands *were surrounded by a red line.* The glands themselves not red—omentum and mesentery inflamed and red—peritoneum otherwise healthy.

Pelvis.—Bladder empty.

Analysis of eight cases treated in September.

1st. Very severe—recovered by treatment pointed out. Had consecutive fever which kept him a month in hospital.

2nd. Fatal—in 12 hours from admission (P. M. examination recorded under the head of pathology, *p.*)

3rd. Case—very severe—℈j. & ℈ss. doses of calomel continued twice a day for 3 days—before secretions from bowels resumed a healthy state—*recovered.*

4th. Attacked at 11 at night, admitted at 2 A. M., most active remedies used, died in 48 hours from seizure.

5th. Cured by cal. et op. 1 dose, and ol. Ricini 1 dose, in 24 hours.

6th. Slight also. (Cured)

7th. Attack came on at 5 A. M. was admitted by 8. Hot bath, V. S. cal. et op. cured him the same day. 8th. Seized suddenly at 6—admitted at 8. Hot bath, V. S. cal. et op. cured him same day.*

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* Originally published by me in Med. Phys. Trans. Cal. Vol. VIII.

CHOLEROID FEVER, OR SWEATING SICKNESS OF INDIA.

By JOHN MURRAY, M. D. *Bengal Horse Artillery.*[*]

"THE SWEATING SICKNESS appeared in the end of June, and in July; and again in the end of September, and in October.

In May and June, 1839, Cholera was very prevalent in the neighbouring Districts, and there were a few cases of it among the Native Troops in the Cantonments. In June, July, and August, a few cases of it occurred among the Europeans ; and in August, September, and October, intermittent and remittent Fever became prevalent, with some cases of dysentery. There was rain for a few days in the beginning of June, after which the weather was very hot during the day and close at night till the end of July, when the regular rainy season set in. It continued cool till the middle of September, when the rain ceased ; and the weather again became very hot during the day, but the nights were cold.

The symptoms of this disease commenced with rigors or chilliness, followed by dull headache, increased heat of skin, and dilated pupils : There was at the same time a burning sensation at the epigastrium, with restlessness and thirst, and generally, copious watery motions *smelling like the flesh of carnivorous animals slightly tainted.* In many cases there was *vomiting of a similar fluid*, attended with cramps in the extremities ; and the skin soon became bathed in perspiration. There was also great oppression in the breathing, with anxiety and uneasiness at the præcordia, and a weak rapid pulse. At the commencement there was prostration of strength, with a feeling of exhaustion ; and afterwards there was real debility, sometimes extending long into convalescence.

In the severest forms of the disease all bodily uneasiness soon ceased, except that arising from the thirst and the pectoral oppression : The perspiration continued excessive, and became cold : the mental faculties remained clear till towards the end, when coma gradually supervening, death sometimes ensued within 10 hours of the period of attack. Vomiting and cramps were neither constant nor prominent symptoms :—but in the severe cases, no urine was passed, nor was there any bile in the evacuations till re-action ensued.

When the disease took a favorable turn, the pulse became more full and slow ; the burning heat at the epigastrium, and the præcordial oppression diminished ; some dark green fœculent matter was passed by stool ; a little urine was secreted ; and the patient slept. If the case did not proceed at once to convalescence, the pulse did not become natural, the pupils remained sluggish, there was anxiety, and the skin continued muddy and strongly perspiring.

After a remission of 24 or 48 hours, sometimes anticipating by 2 hours, the same train of symptoms was apt to be renewed. The skin became dry at first, and sometimes hot ; the burning sensation in the epigastrium recurred, followed by two or three watery nauseous stools, and great exhaustion of the strength ; and although the skin became cold, the perspiration increased. There was occasionally wandering of the mind, but extreme collapse with a state approaching coma was more common; and these increased after such periodic exacerbation or paroxysm, if the case was proceeding unfavorably. There were never any cramps after the first attack; and vomiting was also less frequent. The appearance of the stools was brown, green or yellowish—the latter being most favourable.

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[*] Madras Quart. Med. Journ. p 840 Vol. II p. 77.

As the disease went on, remissions succeeded the exacerbations or paroxysms with a regular periodicity. When the patient was to recover, the attacks became more slight; and sometimes convalescence was rapid, without leaving any organic derangment; but when the disease was of a dangerous character, the collapsed and comatose states were more prolonged after each exacerbation, and sometimes the patient never rallied after they came on.

One patient remained three days in a state of coma, yet ultimately recovered: in one case convulsions preceded it; and in two others it came on after very acute pain in the region of the kidneys, which appeared to be spasmodic as it subsided suddenly. In several cases uneasiness was complained of, about the heart, and continued for sometime after convalescence was established, *which I have a strong notion proceed from the formation of coagula in some of its cavities.**

The blood was found very liquid when venesection was instituted; the coagulum loose, *and the serum muddy and mixed with colouring matter of the red globules*; and leech bites were apt to ooze for a long time *in consequence of this dissolved state of the blood.*

Those who suffered once from this disease, appeared rather predisposed to a relapse or recurrence of it, in some instances at regular intervals.

In many instances it approximated in its symptoms very closely to the ordinary character of pestilential cholera, as regards vomiting, purging, cramps; and the smell of the alvine evacuations; but independently of it remittent or periodic character, there was a want of the shrivelled countenance, and the nature of the perspirations was peculiar.

In many of the cases the disease bore a close analogy to Remittent Fever, but there were generally the peculiarities of the excessive perspiration (having *a smell like that perceived on skinning a tiger after a hot day*), the burning sensation at the epigastrium, and the watery nauseous stools, superadded.

The morbid appearances in two cases which proved fatal during the first day, were similar: there was the dissolved dark state of the blood, with serous effusion on the brain, and abnormal sanguineous accumulations in the thoracic and abdominal viscera. *Coagula were found in the heart* (*I believe they had formed before death*), and the same was also observed in a case which proved fatal at a later period, where some of the other morbid appearances were not found. Several lesions observed on dissection were unconnected with recent disease—for instance, in one there was great thickening of the coats of the bladder, the effect of stricture; *in another an hepatic abscess had burst into the pericardium* (*a rare occurrence*); and in a third I found inflammation of the mucous follicles of the colon, which had evidently been caused by the frequent administration of saline stimulating enemata.

It is well known that suppression of the secretion of urine or of bile,

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* Note by A. W. See remarks p. 67.

(independently of other disease,) will in a few days cause irregular action of the heart, with coma and effusion on the brain ; and in the worst cases of the sweating sickness, both these secretions were entirely suppressed, and coma sometimes rapidly supervened, which I consider as a remote effect of the original cause, acting through the medium of the suppression of these secretions ; and this supposition is strengthened by the course of the *head* symptoms, which occur during a severe primary attack, but disappear on the restoration of the flow of urine and bile.*

No appreciable cause of obstruction could be traced in the secreting organs or excretory ducts to account for the suppression of the bile and urine. Spasm of the secretory vessels may be supposed to be the cause ; or it is perhaps the effect of the derivation of the fluids to the skin and mucous membrane of the alimentary canal—but, allowing either explanation to be correct, how is the spasm, or the excessive discharges by the skin and bowels to be accounted for? (I should say by filtration outwards of the contents of blood corpuscles and capillaries—A. W.)

There were no morbid lesions detected in any part of the nervous system beyond *congestion and effusion on the brain*, and congestion about the other nervous centres ; which are very insufficient to account for the phenomena of the disease, and its fatal termination.

By far the most remarkable morbid appearance is the great alteration in the blood from its healthy state :—Its vital properties are diminished ; *its power or property of coagulating weakened* ; *the coagulum is less firm ; and colouring matter is partially diffused through the serum. The blood usually also had a very dark colour ; though. in some cases, it was known to be florid a few hours before collapse supervened. The serum had a muddy appearance, and a peculiar smell. The blood was probably less stimulant to the heart than in its natural state.*

In this disease are found all the symptoms produced by the retention of those parts of the circulating fluid usually removed by respiration—as lividity of the countenance, depressed heart's action, and congestion in the large veins ; and we find also those caused by suppression of the urine and bile—as vomiting, coma, and serous effusion within the cranium. In addition to these, there is the periodic return of the symptoms, with the excessive perspi-

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* We have extracted the following account of the Sweating Disease of Europe from the best writers we have had access to.

It is known under the names of "*Sweating Sickness*," "*Sweating Miliaria*," "*Sudor Anglicus*," "*Sudor Picardius*," "*Febris vel Helodes Sudatoria*, *&c.* ;" and is an affection of a pestilential and malignant nature, rapid in progress, with excessive sweating as the most prominent symptom.

It ravaged England from 1480 1485 ; and in 1506, 1517, 1528, 1551 ; and has been described by Dr. John Kaye (called Caius, as he wrote in Latin) who denominated it "*A contagious pestilential fever of one day*," from its progress to death being so rapid, and after him Borsieri (*Burserius*) called it the "*Ephemera maligna* :" but *its contagious quality is questioned* ; and it is not properly a "*one day*" fever.

It prevailed in France in 1618 ; in Germany in 1652 ; in Frankfort in 1652 ; in Augsburg in 1660 ; in Bavaria and Holland in 1666 ; in Hamburg in 1675 ; in Saxony in 1694 ; in Hungary in 1697 ; in London and Edinburgh towards the end of the same century ; in Plymouth in 1738 ; in Normandy in 1740 ; near Nantes in 1750 ; in Navarre in 1755 ; in Piedmont in 1768 ; in Bayeux from 1769 to 1776 ; in Toulouse in 1781 ; &c. In all these it was generally ushered in by chills and other premonitory *ration, and the watery stools having a rank nauseous smell, which is only to be accounted for, by the existence of a morbid condition of the blood or the admixture of some deleterious substance with it.*

With the nature of this deranged state of the blood, further than manifested by its effects in the living body, and the influence of certain remedies counteracting these, I am unacquainted."—*Madras Journal, Vol. II.*

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febrile symptoms, speedily followed by pains in the head, loins, and limbs; nausea, peculiarly offensive and profuse sweating, and dyspnœa; and about the third day, if the patient lived so long, often a miliary eruption broke out, not the effect of treatment. [In 1830-31 a fever prevailed in England accompanied with a peculiar eruption "something between the eruption of scarlatina and purpura;" and during the prevalence of cholera in 1832, it was observed that *in some cholera patients after they had passed through the blue stage, the consecutive fever was accompanied by a precisely similar rash. Dr. Billing mentions that at St. Petersburgh many patients during the consecutive fever of cholera presented this identical eruption*]

The epidemic occurrence of sweating fever in Picardy (La Suette Epidemique) is first recorded in 1718; since which time, however, it has frequently recurred in that province and other parts of France, nearly approaching in character to the sudor Anglicus of the 15th and 16th centuries in respect to the profuse sweat and the rapidity of its course—it was often without any miliary eruption.

In 1747 the sweating sickness appeared in Paris, as described by Ballot, Maloni, and Boyer, who observe that some cases ran their fatal course in fifteen hours, although more generally not until the third or fourth day. It occurred in the Oise in 1747; at Beavais in 1750; in the north of France in 1753; at Amiens in 1758; and at St. Quinlein in 1768-69.

ACCOUNT BY DR. CAIUS.

The picture which Caius presents of the symptoms is as follows·—" Primo insultu aliis cervices aut scapulas, aliis crus aut brachium occupavit. Aliis sensus erat veluti spiritus, aut flatus calidi per membra ea discurrentis. Una cum his subitus et sine manifesta causa huic morbo insuetis. largus sudor manavit. Interiora calebant primo, postea ardebant, calore jam inde ad extimas corporis partes diffuso. Sitis ingens, jactitatio inquieta. Cor. jecur. atque stomachum male morbus habuit. Omnia subsecutus est gravis dolor capitis, vanum loquaxque delirium, post marcor, et inexpugnabils pene dormiendi necessitas.

" Rursum, aliis principio cohibitus sudor est, frigebant membra leviter. At postea erupit idem promotus. sed odore gravis, calore in alio alius prohumoris ratione, quantitate subinde diminutus, subinde copiosus, substantia crassus. Aliis nausea, aliis vomitus erat, sed perpaucis, et penè solis ex cibo saturis. Omnes spiritum gravem ac frequentem, vocem gemebundam expedivĕre. Urina colore tincta leviter, substantia crassior, levamento ambigua (nulla enim naturæ regula propter veneni impetum), cætera pro naturali. Pulsus, si quis prætentet, concitatior, freqentior. Hæc *certa morbi indicia erant.*" (Liber J. Caii). III. Editors of Madras Journal, vol. 4 1840.

The modes of treatment were puerile, and offer nothing instructive. A good constitution, and exposure to fresh air, seem to have been most successful in promoting a cure.

The epidemic which took place in France 1821, and ably described by M. Rayer, seems to have been more asthenic than former attacks. He divides it into two forms. the *mild* and the *malignant*; but there were intermediate grades, and what he called the malignant were only the more severe cases. It generally commenced with chills; occasionally persons went to bed well, and awoke bathed in a sweat which continued till their recovery or death. The sweat was attended with a peculiar odour, which Rayer, Schall, and Hessert compare to that of rotten straw—M. Meniere (who describes the epidemic of 1832) compares it to that of water impregnated with chlorine, or to that of the stools of cholera patients. M. Cloture calls it " a rotten sour smell." *Editors of Madras Jour.*

PATHOLOGY OF THE HEART AND ARTERIES.

The necessity of the task attempted in this work, namely to fix the Pathology of INDIA by indisputable facts, can hardly be made more manifest than in this present division of DISEASES OF THE HEART AND CIRCULATORY SYSTEM. I shall preface this section by the following elaborate statement put forth in the latest European work which I have seen upon the subject, which goes to prove that these diseases are rare in Europeans here, and hardly known among Natives of INDIA.—MR E. CRISP, writes.

" *East Indies.*—The following interesting information I obtained from my friend Mr. C. S. Webber, late surgeon-superintendent in the Colonial Emigration Service.

" With respect to the inquiries you wished me to make on the subject of diseased heart and arteries, I am sorry they have not resulted in the acquirement of any positive information ; the few facts I have been able to obtain being almost entirely of a negative character. Among the natives here, including the Parsees as well as the Hindoos, aneurism appears to be, if not altogether unknown, a disease of the rarest occurrence ; organic disease of the heart almost equally so. I say ' almost,' because in the course of my researches, I met with several cases recorded under the head of ' asthma,' some of which I suspect were complicated with disease of the heart, although that question seems to have been left untouched in the details. I twice visited the principal native hospital of Bombay, which is situated (immediately contiguous to the Grant College) at Byculllah, and went over the whole Register of Cases for the years 1843 and 1844, comprehending for the former year, 2067 ; for the latter, 2258—total, 4325. Among which, no record of diseased heart or arteries was found ; in the same period the cases of phthisis were 21). The principal medical officer, Dr. Morehead, told me that he could not call a single case to his recollection. The assistant-surgeon Dr. Peale, assured me, that during three years' service afloat in the Indian navy, with crews of Europeans and natives mingled, he had not seen a case. (Dr. Morehead had some remembrance of having seen aneurism in the native, but very rarely indeed, and could not call to mind any details). The names of *heart disease,* or *aneurism, do not occur in the Government Forms of Return.* I repeatedly visited the European hospital at Bombay (number of beds 150). Dr. Graham, the principal medical officer, informs me, that the diseases in question are, in his experience, of very rare occurrence. Dr. Peat, the resident surgeon, has had no case under his care during his period of charge. He kindly assisted me in going over the Register of Cases for about the last twelve months ; and although we minutely examined all suspicious cases, such as fatal attacks of rheumatic fever, with post-mortem inspections, &c., we found no instance of organic disease of the circulatory system. Functional disorder of the heart is not uncommon. Dr. Grierson, of the Lunatic Asylum and Hospital at Colabah (which I visited), confirms the statements previously obtained; and Dr. Burns, K. H., tells me, that during five years' experience as *secretary to the principal Medical Board of Western India, he does not remember to have seen a case of aneurism,* *organic disease of the heart.* Dr. Hunter, of the Queen's Bays, an experienced stethoscopist, who published a paper in the 'Transactions of the Medical and Physical Society of Bombay,' last year, attributes the "frequency of disease of the heart and larger vessels in European troops at Poonah (Western India) to the practice of subjecting the soldier to active duty, whilst closely buttoned up in his accoutrements, thus compelling him to undergo violent exertion, whilst the chest and neck are tightly compressed."*

This evidence is very strong, and if correctly stated leads to the conclusion that disease of the heart and arteries is almost unknown in India. Still it is the evidence of a visitor. But the general impression upon this subject *in* INDIA itself, is equally erroneous, as may be gathered from the following extract of a review of the 1st Edition of the Pathologia Indica, in the India Journal of Medical Physical Science Ap. 1845.

"The practical observations embrace the more important points in the pathological anatomy of diseased arteries, videlicet, that aneurismal tumors are not mere local or accidental lèsions of structure, but are dependent upon morbid degeneration of the arterial tissues, especially of the inner coat, characterised by calcareous or atheromatous deposits for greater or less extent, and over a larger or smaller surface in the internal coat, and dependent upon a constitutional cause or general diathesis.

"It is worthy of notice that almost all the specimens of altered structure of parts of the circulatory apparatus have been taken from the bodies of Europeans, *and not from any of the natives of the country.* It naturally suggest a question, *are the natives of India exempt from aneurismal tumors, and in what degree are they so?* The paucity or absence of all preparations of aneurismal specimens in so circumscribed a collection as that to which our remarks have reference, cannot justify us in drawing a general inference of their entire exemption from the morbid degeneration of structure inductive of aneurismal development, combined with our knowledge of the extreme prejudice that Asiatics entertain to anatomical examinations. We would not therefore run the risk of accounting for an immunity which may not exist, and which future experience may disprove.

"Were we inclined to trust ourselves in the field of conjecture we would infer their insusceptibility to the less development of the muscular system, whether forming the great part of the limbs or entering into constituent portion of other organs as the arteries, heart, &c. and to which the infrequency of aneurismal tumors in the sex may be attributable. We can scarcely assign it to their not making such violent exertions as Europeans of the same class, as the common porters or coolies, and boatmen or dandies are in the course of their occupation obliged almost daily to make equally powerful and continued exertions. *Is it that the natives of India are not subject to the morbid depositions which are found in the internal tunics of the blood-vessels, and which precede aneurismal formations?* This interesting topic, so far as it is connected with the tropical pathology of the circulatory apparatus, Mr. Webb does not touch upon in the present edition of the work under review, nevertheless, it is not unworthy of investigation." In order to determine this important question I present in one view the preparations derived from Natives of India.

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* Structure, Diseases, of the blood vessels. BY EDWARDS CRISP. *London*, 1847, *p*. 122.

PREPARATIONS.

Museum of Bengal Medical College.

DISEASES OF HEART AND BLOOD VESSELS

In Natives of India.

1423. *Endo-carditis, Aortitis Pneumonia Emphysema, from a Native* presented by *Tameez Khan.*

The cavities of the heart are stuffed with solid organized coagula, prolonged into the large arteries and veins, both upper and lower surfaces of the tricuspid valve were lined by false membrane, which had partially united the edges of the valve together, and contracted the opening. The mitral valve was lined in the same manner; flakes of false membranes also, and irregular masses of fibrine, and of atheromatous (*purulent?*) depositions are seen to cover the aortic internal coat, occasionally interrupted by ulceration in various stages. This diseased condition exists throughout the internal coat of the whole thoracic aorta, its general colour is dusky red.

The *lungs* are in some parts almost gangrenous, in other places solidified, and towards the free anterior edges emphysematous, the ruptured, dilated air cells being full of pus, (see RESPIRATORY ORGANS No. 1509 for emphysematous portions.)

1579. *Heart of Native, pierced with wounds presented by Mr. Thomas see p.* 193*.

1697. *Shows in a Native endopericarditis consequent upon a wound; thick fibrinous deposits generally upon the visceral layer of the pericardium, thickening and atheromatous deposits in the auriculo ventricular valves, fatty degeneration of the substance of the heart, fibrinous layer deposited in the meatus pulmonalis.—Presented by Dr. Scanlan of Backergunge.*

Sir,—I beg leave to forward to you, the history of a fatal case of disease of the heart which lately came under my treatment as also the organ itself, a morbid specimen, for the use of the museum. A man, named Ahid, who received a small punctured wound on the 6th rib of the right side, as also some wounds on the back of the thigh, was admitted into Hospital on the 23d ultimo labouring under severe pain of the left breast, extending to the lower part of the sternum and to the axilla, attended with compression and very great anxiety, as also dulness and pain upon pressure, over the region of the heart; the case was treated with leeching and small doses of calomel, antimony and opium frequently repeated, but terminated fatally on the 4th day after admission. Upon opening the thorax I found the left lung highly congested, and on the right lung I observed small black spots, as large as a six-pence and also a few tubercular deposits, upon examining the heart it presented a rough appearance, having the pericardium inseparably attached to its apex; and a softened and highly inflamed condition of its base. Upon examining the wound I found it superficial and not extending to the pleura which first struck me as being the seat of the disease, and that the pericardium became subsequently engaged but such was not the case.

(Signed.) M. SCANLAN, *Assistant Surg.*

1422. *Diseased Heart of a Native of India brought for Dissection, having died of apoplexy of the liver, lungs and brain. In the lungs the blood is driven exterior to the air cells, the heart is enormously enlarged in all its cavities, about thrice the usual size of a Native.* Endocardium on the left side opaque, aortic valves thickened with cartilaginous and atheromatous deposits, which last are also seen at the summit of the aortic arch, producing arctation there of the great vessels. The right ventricle shows recent endocarditis, and is lined by false membrane, the external cellular coat of the arteries is greatly congested, and a dark bloody extravasation is seen under the pericardium. Presented by *Baboo Modoosudun Gooptu.*

1649. *Pulmonary artery in a Native with four valves. Enlargement of right cavities of heart. Gangrene of lungs.* The heart is very greatly altered from its natural figure, it is almost round. The right auricle very greatly dilated, as also the right ventricle and the meatus pulmonalis, and the pulmonary artery. The latter are twice the usual diameter. *The pulmonary artery has four instead of three valves.* An organized coagulum lined with false membrane is seen in the right ventricle, the left ventricle is greatly hypertrophied, its lining membrane opaque. The valves of the aorta are thickened and there are atheromatous depositions about the arch. The lungs are universally adherent to the wall of the chest. They are both completely solidified, the right lung gangrenous throughout, the left partially so near the centre, *Presented by Dr. J. B. Bond, Civil Asst. Surg. Burdwan.*

Sir,—By this day's bhangy dak I beg leave to forward to your address for the College Museum, a specimen of disease of the heart, taken from the body of a male prisoner aged 40. He has been nearly eighteen months an inmate of the Jail Hospital for disease of the heart and lungs, and, as I anticipated, died suddenly. I trust this may prove an interesting specimen.* *Nov. 15th* 1847.

1523. *Heart (from its small size is probably from a Native.) Covered within and without by small pox pustules, which are also abundantly developed upon the aorta, and pulmonary artery within and without, causing perforation of the valve, and aneurism.* The right auricle shews scarcely any pustules excepting one or two large ones upon the appendix auriculæ. The outside of right ventricle is free, excepting the meatus pulmonalis, upon which they are so numerous as to have become confluent, upon the tricuspid valve where it is joined to the meatus one large pustule is observed to separate as a slough, there are no others within the right ventricle, pus and lymph only are seen upon the carneæ columnæ. One valve of the pulmonary artery almost perforated by pustules destroying the texture, the artery like the meatus covered inside and out, by pustules, in some instances large ones have nearly perforated the vessel through both coats, in others those within the vessel are not correspondent with those without it.

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* I take this opportunity of expressing my thanks to DR. BOND for these valuable accessions. A. W.

† This specimen arrived during my absence on account of sickness, and by this accident the donor's name is unknown to A. W.

The left auricle is free from pustules both within and without; the left ventricle very much dilated, is covered with pustules and fibrine without, *anteriorly*; but none corresponding are seen upon the endo-cardium within. On the contrary the *posterior wall* of the ventricle is entirely free, *externally* upon the pericardium: whilst internally the endocardium is loaded with them. The aorta has a large oval opening in one of its semilunar valves, most probably from the separation of a pustule, and a large irregular opening leads from it to a small aneurism, which would contain a hazel nut extending between the auricle and ventricle on the left side. The aorta interiorly presents marks as of cicatrices from pustules.

1662. *Heart of a Bengallee woman who died of a fever, presented by Professor Webb.* The pericardium was covered within by numerous red dots, surrounded with effused lymph and pus. The right auricle opened was found to have an organized coagulum which was attached between the musculi pectinati where the two serous membranes endo-et-pericardia are in contact. It was prolonged as a lining to the right ventricle.

The left auricle covered on the outside with fibrinous deposit had, a coagulum which was adherent to the musculi pectinati within: it is still seen rough on one side, smooth and lined with membrane upon the other. It has united a portion of the lips of the mitral valve, and consequently narrowed the opening to the ventricle, it is prolonged as a false membrane inside the ventricle upon the musculi papillares.

There was complete hepatization of *both lungs* at their lower part, also an intense bronchitis.

The peritoneal cavity had numerous flakes of lymph floating in a little purulent serum. The small bowels at short distances were surrounded with *rings of ulceration*, which in most instances *had penetrated the muscular and serous coats* from without so as to leave the mucous coat projecting as a pouch, and allowing the adjacent pleats (or valvulæ conniventes) to disappear and become a plain mucous surface on the interior, (see No. 1664): mesenteric glands enlarged. *Liver* enlarged and very soft. *Spleen* so large as to extend into the pelvis, covered outside by thick depositions of fibrine, and softened within.

1876. *Endo Pericarditis—Obliteration of pericardiac cavity pulmonary vomica, &c., from worms in Æsophagus*—the fleshy substance of the heart has partially undergone the fatty degeneration, is very lax, and easily lacerated, the lung adherent to the pericardium covered outside with layers of lymph, atrophied, having an encysted taberculous deposit in the centre, adjacent to a large vomica, the walls of which are quite ragged, and have opened by two small openings into the pleural cavity ;—the lower part of the lung hepatized, the upper part healthy and free from tubercles. The aorta has atheromatous deposits, assembled in large patches about the valves. The œsophagus is absolutely stuffed with lumbrici—and to the irritation caused by them may probably be attributed to the inflammatory appearances recorded. *Presented by Dr. T. Oxley—Senior Surgeon, Singapore.*

891. *Atrophy of the heart in a Bengallee. Presented by Dr. Oxley.*

1622. *Displacement of the heart of a Native of Bengal from Empyema,* presented by *Professor Jackson.*

1643. *The Aorta of a Native of an intensely red color generally, covered with ulcerations and cicatrices, and presenting small aneurismal dilatations.* Presented by *Baboo Dwarkanauth Bose, Asst. Demonr.*

1435. *Shows general arteritis in a Native,* presented by *Professor Webb.*

1677. *Ossification of the coronary arteries, and general atheromatous disease of the arteries from an old Bengallee.* The coronary arteries are quite ossified, like quills. The heart atrophied, atheromatous deposition upon the mitral valve, and the aortic valves, dilatation of the aortic arch, arctation of its branches, general atheromatous deposition upon the aortic internal lining, both in the thoracic and abdominal divisions, at the under part of the aortic arch this atheroma has caused ulceration almost through the vessel, and adhesive inflammation of the surrounding tissues preparatory to aneurism. The coronary arteries are ossified through the greater part of their length : the aortic valves considerably thickened ; slight dilatation of the aorta, at the point where its ascending and transverse portions meet : the right mitral valve of the left ventricle, the sinuses of Morgagni, the whole of the thoracic aorta, from its origin in the left ventricle, as well as the abdominal, to its bifurcation into the common Iliac arteries, and also the right *external* Iliac for about an inch and a half, were found infiltrated with the atheromatous deposit ; at the transeverse portion of the arch, where the arteria innominata, and the left carotid and subclavian are given off, this deposit was also observed, producing arctation. A small ulcer, situated about the beginning of the descending aorta was also seen, the coats of the artery externally having formed adhesions with the neighbouring parts. The coats of the arteries were considerably thickened throughout, and on being cut remain round and widely open.

The alveolar processes of the superior and inferior maxillary bones, were entirely removed by absorption, presented by *professor Webb.*

1814. *Calcareous deposit in the aortic valve in a Native,* presented by *A. S. Simpson Esq.* 14 *Civil Surg. Mynpoarie* The subject of this case was an old man, a prisoner in the Mynpoory Jail, dropsical and asthmatic. He had all the symptoms of disease of the heart, the '*bruit de soufflet*' was particularly loud. Before the valve was slit open, the permanent opening could be perceived allowing regurgitation ; considerable hypertrophy with dilatation of the left ventricle existed.

1571. *Aorta with ulcerations and atheromatous and fibrinous deposits and false lining from a Native,* presented by *Mr. Minas.*

1641. *A fine specimen of endo-pericarditis from a native of Bengal, false membranes outside and inside the heart, a less degree of the same conditions recorded 1408, presented by Baboo Dwarkanauth Bose.*

1387*. *Aneurism of the arch of the Aorta of a male Hindoo, found dying upon the road,* presented by *Dr. James Taylor, Dacca.*

1813. *Aneurism of arch of aorta in a Native.* (This is not stated but the heart is so small, I conclude it was from a Native A. W.) *presented by A. S. Simpson Esq. M. D. Civil Assistant Surgeon. Mynpoarie* The subject of this case (Œtat 47) died suddenly from the bursting of the aneurism into the cavity of the chest. The aneurism had never been suspected, there having been no dyspnœa, palpitation, nor any symptom of chest affection. He had been treated for a considerable time for hoarseness amounting almost to loss of voice, which was thought to be dependent on chronic inflammation or ulceration of the larynx ; the sthethoscope had never been, I believe, used.

Having assisted at the Post Mortem Examination, the specimen fell into my hands. The aneurism was nearly filled with a fibrinous coagulum, but at the site of the rupture which was small there was no coagulum. The larynx was quite healthy. The post mortem inspection developed the cause of the loss of voice viz. paralysis of the recurrent laryngeal nerve, the aneurism existing where that nerve curves round the arch of the aorta.

1674. *Aneurism of the arch of the Aorta from the ascending portion, from a Native.* Presented by Dr. Oxley, Singapore.

1667. *Aneurism of the Thoracic Aorta in a native of China, forming a pulsating tumor on the man's back,* by *Dr. J. A. Ratton.*

1040. *Abdominal aortic aneurism in a Native burst through the diaphragm into the chest. Sent from the Medical College Hospital. Case by Kedarnauth Ghose. (See p. 75)*

1313. *Carotid aneurism, in a Native presented by Professor O'Shaughnessy.*

532. *Aneurism of the right carotid in a Native.*

968. *Aneurism of the external iliac, Native. Prof. R. O. Shaughnessy.*

933. *Aneurism by anastomosis, Native. Prof. R. O. Shaughnessy.*

896. *Aneurism of femoral Artery Native Prof. R. O'Shaughnessy.*

1660. *Aneurism in the muscular structure of the heart, of a Native with, spontaneous rupture,* presented by *Dr. Ross, of Jessore.*

The heart very much altered in its external appearance. The right auricle is exceedingly dilated. The auriculo ventricular opening very large. There appears to be no proper right ventricle, but this is compensated for by enormous dilatation of the pulmonary meatus; which admits four fingers, and has *burst in its most dilated portion.* This was occasioned by an aneurismal formation in the apex of the left ventricle about the size of a small fowl's egg, which has encroached upon the capacity of the right ventricle. The left auricle dilated, the auriculo ventricular opening is very large.

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* ANEURISM IN NATIVES OF INDIA.

Aneurisms cured by ligature are recorded so far back as 1830 in the Transactions of the Calcutta Medical Society.

A. Macdougal M. D. gives a case of Popliteal Aneurism (vol. I. p. 190.)

J. Lawrence Esq. gives another vol. iv. p. 393.

R. O. Shaughnessy Esq. gives one of femoral aneurism vol. viii. Appendix p. ccxxiii.

Memo. by Dr. Ross.

Case of Rupture of the right ventricle of the heart occurring without any observed premonitory symptoms. The man was admitted into Hospital on the 10th of November, 1847, with slight fever from which he was quite free on the 11th. After being discovered on the morning of the 13th, in a state of nearly complete collapse he emerged with scarcely any signs of vitality for nearly 12 hours; the rupture was nearly longitudinal, the opening at first when the rupture was examined was exceedingly minute internally, but was externally about 11 lines in length and the valve like opening was partially closed with clots of blood. There was about a pint of blood in the pericardium which was of a dark color and only slightly coagulated. There were about two pints of blood in the posterior mediastinum.

1600. *Fibrinous vegetations around the valves of both auriculo-ventricular openings, especially the right; one portion prolonged for an inch marks a sinus leading from the right ventricle and communicating with the aorta just above the valves.* The pericardium was distended till it filled nearly half the chest, and almost hid the compressed left lung. *From an Armenian child,* died anasarcous. Presented by *Professor Stewart,* with annexed account.

The little girl whose heart we examined was of Armenian parents, born in Calcutta, aged 7 years ; was delicate and puny from her birth, subject to fever of remittent type, and to its sequelæ, spleen, and glandular enlargements.

From birth some peculiarity was observed in the heart's action attributed to imperfection of the valvular apparatus, (and probably patency of the foramen ovale.) As she advanced in life the disturbance became greater, the heart's action irregular and tumultuous, no distinction could be observed of the nature of a double beat, but each contraction seemed to engage both ventricles at once, and the sound was unlike anything I can think of, unless the forcing of water through a sieve. During the last ten months there has been gradually encreasing general anasarca, and accumulation of fluid in the pericardium, encroaching enormously on the cavity of the thorax, and impeding respiration.

I should mention as a curious part of the family history, that the parents for several generations have been blood relations, that the child's mother for several years of infancy suffered from similar symptoms of heart disease, that two of the other children have exhibited mal-formations or mal-developement of parts, i. e. cleft palate, &c.

1647. *Displacement of heart in a Native from empyema. Endo-pericarditis aortitis, atrophy of left lung and tuberculosis of the lung.* Probably a vomica had burst, a collapsed cavity is seen at the top of the left lung, and a little lower down the sloughing margin of an opening communicating with another. There is an irregular deposit of caco-plastic fibrine around, also one or two spots in right lung. A portion of the diaphragm is preserved, its upper part covered with fibrinous deposits. *Presented by Dr. Bond, Burdwan.*

Sir,—By this day's bhangy I beg leave to forward a specimen of morbid anatomy for the Museum of the Medical College, it having been intimated in a circular, received from the Medical Board, that cases of morbid anatomy especially those of the heart and liver were anxiously sought after by the Curator of the Museum. The case of the man from whom this was taken is not a common one, and only on this account can be instructive, for the best preparation can give but a faint idea of the position and appearances that an examination in the dead-house affords. The man was admitted 10 weeks ago for intermittent fever, enlarged spleen and diarrhœa, scorbutic state of the gums, and general debility. His case being one of daily occurrence, the mischief that was taking place in the thorax escaped my notice. He also laboured under ascites. About a fort-night previous to his death he pointed out a thickened state of the skin over the epigastrium, and in a close examination I discovered a fulness of the side, dulness on percussion, displacement of the heart, and considerable œdema over the ribs of the affected side. During the whole period of his illness, he never complained of either pain, cough, expectoration, or difficulty of breathing, and all his ailments were ascribed to the abdominal disease. *Burdwan, Nov. 6th,* 1847.

Autopsy of a Prisoner, aged 25.

Abdomen. Contained a large quantity of serum. Small intestines vascular, spleen enormously enlarged, soft and friable, kidneys larger and paler than natural, otherwise healthy—*Thorax.* Left pleura contained 12 pints of purulent matter, pleura densely coated with lymph, the lung adhering by thick bands to the upper and anterior part of the chest, which prevented it from being compressed as it usually is in such cases. By the side of the spinal column, however, it was completely solidified. Heart thrust out of its position towards the right side, lung of the right side, adherent at the superior and posterior parts, and compressed into less than two-thirds of its natural size.

The only *remark* I shall venture to offer, was the enormous compression the lung underwent, and yet the external symptoms betrayed little signs of such extensive thoracic disease. He had no dyspnœa, cough nor expectoration, nor even any difficulty in lying down.

If you will kindly inform me if cases of this nature are acceptable, I shall endeavour to comply with the request of the Board, but most of the deaths amongst the prisoners are from bowel complaints.

868. Endo-pericarditis p. 26 to p. 30.
749. ———— aortitis. p. 207.
884. Scirrous heart p. 28.
641. Extraordinary atrophy p. 28.
981. Endo-pericarditis (Hindoo) p. 69.
1317. Chronic endo-pericarditis p. 59.
1314. True arteritis and cholera p. 61.

Also from Natives of India. I have assisted in the ligation of the common carotid twice, of the common iliac twice, of femoral twice for aneurism in Natives. A. W.

CASES.

ANEURISM OF THORACIC AORTA IN A CHINA-MAN PROJECTING A TUMOUR ON THE BACK.

By Dr. T. A. Ratton, Civil Assistant Surgeox Malacca.

1667. Mootoo aged 25 Kling Trade. Bumboatman. Job work.

July 27th 1846.

℞. Ol. Ricini ℥j.
Tinct Opii gtt. x. to be taken directly.
Mag. Sulph. ℥j.
Ant. P. T. gr. ij.
Aqua. oj.

Admitted complaining of a tumour in the back, dyspnoea weakness and other distressing symptoms.

About 2 years ago he first felt a pain in the abdomen in the left hypochondrium and likewise under the ribs, where he at present also experiences pain on pressure : after about a year the pain ascended and was seated under the ribs, attended with oppression of the chest, difficulty of breathing, &c. which symptoms have continued up to the present time. For the six months antecedent to this last named accession of symptoms: viz. about 6 months after the first attack he was subject every day about 4 o'clock after having been actively engaged in his calling, to a painful hardness over the epigastric region which lasted till 8 or 9 P. M. but has been able to follow his business up to the last 7 months. He was at Singaporo and only came here on account of his mother's death. When at Singapore was treated by Mr. Apothecary Harris who gave him some pills, and applied a blister to the part, after which he placed himself under Chinese treatment. Three months past the present swelling in his back first made its appearance, at first small, but gradually and quickly increasing in size; has continued at its present size for the past two months, after sleeping or lying on his back or left side it gets smaller, but during the day and towards evening it is again as large as before, when he eats his rice, the abdomen becomes swollen ; he feels tired, exhausted with an oppression of the chest, difficulty of breathing, dyspnoea and the action of the heart becomes greatly increased, irregular, and intermitting. He then immediately lies down on his left side, when it gradually goes off: if he turn incautiously it comes on suddenly again, he is then forced to rise up. He cannot sleep on his right side but he can lie on that side for a short time but if he has eaten his rice he cannot. Breathes better when lying on the left side, always lies on it as he feels easier. The swelling which is a pulsating tumour projects from immediately under the left scapula from the lower border of the 4th rib, to the upper part of the 10th rib, and extends to the spine, which is displaced in a curve to the right side : it projects about the size of a fist, but is diffused to double this size, the ribs seeming to have given way before it, to have become absorbed. Had a gonorrhœa and bubo about 4 years ago, at that time the right testicle become swollen and has remained so, but occasions no pain. There is a peculiar œdema, and duskiness of the face, and the veins of the forehead are rather swollen, this is observable when he is lying down, not when sitting or standing up. For the past two wonths he has felt a pricking pain in his feet, which became very much swollen mith a little general fulness of the left side of the both chest and abdomen ; the feet still continue somewhat swollen. If he presses when lying on the left side feels easier. Pulse 112, fast, jerky; bowels regular; stool natural; tongue red from chewing betel, skin moist, urine yellow, turbid, ordered the following medicine.

℞. Pulv. Jalap Comp.
ʒi. Ext. Elaterii 6 gs.
M. ft. Mist. ℥j.

To be taken three times a day; does not feel easier since his admission. The symptoms have not in any degree varied and the same medicines have been continued up to this date.

℞. Morph. Acet. gr. ss.
Ext. Conii. gr ij. m ft.
Pil 1.
1st August

Died early this morning. He was freely purged yesterday from the medicines, and from which he in the evening expressed himself much relieved, cooked his dinner, rice (as he did daily) and seemed as well as usual when he composed himself for the night. He had slept quietly till about 4 A. M. when he was heard suddenly to make a noise and called out; the two Hospital attendants who were sleeping in the centre-ward immediately ran to his assistance to see what was the matter; during which he continued to call out loudly and jump and struggle violently. They found him convulsed in all his body, battling and flinging himself about with great force, so that the two men used all their strength to keep him from falling off the bed. This convulsive action is described to have lasted 3 or 4 minutes when he expired. The treatment, it will be seen, was palliative, given more with a view to gain time and observe symptoms. He was not examined with the stethoscope, not having it at hand, intended doing so the day of his death, also to lower the action of the heart by digitalis, &c. after the purge.

Autopsy 4 hours after death.

External Appearances.—The body is lying on the back, abdomen inflated Teeth firmly clenched, and frothy saliva issuing from the right corner of the mouth. Pupils natural size, not as is usual dilated, on half turning the body to examine the swelling in the back it is found to have almost entirely subsided—receded.

Internal Appearances—Abdomen.—As the disease was situated in the thoracic cavity, the abdomen was in the first instance cautiously opened, the confined gas permitted to escape by puncturing the intestines and stomach and which together with the left lobe of the liver were found considerably displaced downwards, being pushed down by the diaphragm, which was bulged out, protruding downwards, as far as the lower border of the 10th rib. As the case was inferred to be aneurism of the thoracic aorta the liver together with the stomach and viscera were removed, thereby exposing the course of the abdominal aorta, especially with a view to observe its passage through the diaphragm, the abdominal aorta was found normal but comparatively of smaller caliber than natural.

Thorax.—The thoracic cavity was now exposed by very carefully raising the sternum in the usual way by dividing the cartilages on either side. This exposed an immense mass or coagulum of blood filling the left side of the thorax, overlapping and covering in from view the left lung, and this was found to cause the downward projection of the diaphragm above mentioned. After the relations of this large coagulum had been well noted it was removed and was found to consist of at least three pints of coagulated arterial blood. The lung was found diminished to one-fourth part of the natural size and in two parts firmly adherent to the pleura costalis, but though thus diminished, the lung looked healthy ; neither hepatized, compressed nor otherwise abnormal, simply there was not any more than this small portion of lung nor were there any marks indicative of any more having been there. The removal of the clot discovered an immense aneurism of the thoracic aorta lying in the centre, and to the left of the spine to which it was intimately attached. To the right side of the spine lay the heart with its enveloping pericardium, smaller than natural. Upon opening the pericardium it was found to contain about 8 oz. of serous fluid : both auricles unnaturally small, ventricles about the proper relative size in respect to the small size of the heart, ascending aorta and pulmonary artery both of the natural size, arteries of the arch given off regularly. The internal structure of the heart not examined, though put aside for the purpose, as unfortunately through inadvertence of the attendants, it was replaced with the body, while my attention was more particularly directed to the examination and preparation of the aneurism which I had just detached, and to effect which it was found necessary to remove with it a portion of the ribs on either side of the parts implicated, together with the vertebræ ; when it appeared as represented in the accompanying sketches. Further the immediate cause of death was found to be a transverse rupture or rather an *ulceration* in the transverse diameter of the aneurism, giving rise to the immense sudden and suffocating hemorrhage of which the clot was the witness. This opening was immediately upon and in connexion with the 7th rib at its obtuse or posterior angle.

The aneurism was found to extend above from the 5th rib to the lower border of the 9th rib connected with and supported by bodies of 6th, 7th and 8th dorsal vertebræ, and resting upon the flooring of the diaphragm. It further embraced the lower border of the 6th, 7th and 8th ribs and part of the 9th as seen in the accompanying preparation. The inferior border of the 6th rib, it will be perceived, is carious and partly absorbed by the aneurismal action, and that the aneurism has protruded posteriorly, not by pressing the ribs out before it at their obtuse angles, not by displacing them in any way, but by destroying the 7th rib at this point and by caries of the lower border of the 6th rib. But what is most worthy of attention, is the way in which not only has a large portion of the 7th rib disappeared, which however in itself is not extraordinary, but that actually a portion, an inch in extent, is embraced within the cavity of the sac ; into which it would seem at first sight to have protruded. It has a jagged rough pointed end, yet withal it would seem not to have penetrated the cavity, but to have pushed before it the internal serous lining membrane ; for, with the exception of a few rough points of bone it has a smooth surface which would seem to correspond to and corroborate this impression.

In what manner did it attain that situation ? However, upon this I will not myself further venture an opinion, as with a view not to destroy the relative position of the parts, and thus its value as an instructive preparation of morbid anatomy I have refrained from opening into the sac sufficiently to ascertain the exact nature and relation of the parts. This information I must therefore leave to a more matured judgment and experience to afford. I may candidly acknowledge my own experience has not afforded me an opportunity of seeing any similar case, nor can I refer to one bearing upon the point in question. That aneurisms will work their way through any opposition is a fact amply exemplified by cases : dropping water will wear away a stone, but the present seems in opposition to this maxim. It seems not so much to have destroyed the opposition as to have compromised with it by admitting it within itself, receiving it within its cavity, but this only thus again makes us revert to the question of how this was effected? Right lung, liver, stomach, intestines, kidneys, all healthy. No other part examined.

Remarks—It will be perceived from the accompanying preparation and sketches that the aneurismal bulging behind was caused by the posterior portion of the aneurismal sac, and which has been opened perpendicularly to expose the interior appearance and the abnormal nature of the contained parts, as felt by the finger passed into the ruptured part or ulcerated fissure, viz. the ulcerated or carious extremity of the 7th rib at about its obtuse angle and corresponding carious articulating vertebral portion.

It also shews the smooth lining membrane of the sac covering the other portions of the vertebræ to which it is intimately attached, and which could not have been detached from the vertebræ without exposing or denuding the whole of the right side of the sac of which the vertebræ formed as is seen the support or opposing wall. It also shews the spinal lateral curve to the right and further towards the centre of the sac, and attached to its left and posterior part, an auricular looking membranous substance or partition. At the inferior border, at the angle where the sac unites with the body of the aorta, immediately where it rested upon the diaphragm, previous to piercing it, an opening has been made to admit of the finger being introduced for the purpose of examination. Why or wherefore this rupture, or more correctly speaking this sudden effusion of blood should occur at such a time when quiet asleep is rather strange, such usually taking place during some irregular or violent action or unusual muscular exertion ; of which my former case of aneurism offers a further instance. Possibly he may have been troubled with incubus or ephialtes and thus turned himself suddenly in his sleep? by some similar accident produced the immediate fatal result ; by the exertion detaching or rupturing the agglutinating ulcerative adhesions which connected it with the neighbouring costæ or which yet remained as a barrier to the extravasation of the arterial fluid.

MELANOSIS AFFECTING HEART AND LUNGS IN A NATIVE.

C. Palmer, Esq. Civil Surgeon Jessore.

Golam Nubbee, about 35 years of age, admitted into Jail Hospital on 27th March, with fever and a bad cough, did not complain of much pain about the chest on admission; but it increased after a couple of days. On percussion of the chest, dullness over the whole right side, but especially the upper and outer side on the under part of the axillary region ; the sounds on percussion over the left side were also of a dull nature.

Respiration quite, and accompanied with the " subcrepitant rhonchus " over the whole of the left lung, over the seat of dullness on the right, respiration " cavernous" and " gurgling." Expectoration, thick viscid and black, with a very offensive smell.

The fever and more urgent symptoms abated after 2 days treatment, but the cough continued harrassing and he daily grew worse till the 11th instant when he died.

Autopsy.—Body, considerably emaciated. Head, not opened. On opening the chest the effluvia was most offensive, pleura very extensively adherent to the walls of the chest.

Right lung.—Much diseased, of a greenish black colour, over the greater portion of its surface, and several small abscesses filled with a black fluid intermixed with pus, throughout the middle and lower lobules, the upper lobula almost entirely occupied by one larger abscess which contained a large quantity of semi-fluid matter, similar to that in the smaller abscesses, and mixed with pus, this black substance resembled very closely the pigmentum nigrum of the eye—smell peculiar and very offensive. It has a greasy feel, and dissolves in water, the outer wall of the abscess of a greenish black colour, as also the pleura intercostalis, and the 3rd, 4th, and 5th, ribs had also taken on diseased action, being very friable and of a blackish colour, the remaining portions of the lung were in a state of subacute inflammation. *Left lung.* throughout had traces of inflammation—and was considerably congested, on slicing any portion, a frothy mucus exuded, otherwise healthy. No traces of *tubercle* exist. *Pericardium*, thickened and inflamed, and containing about an ounce of fluid in its cavity. *Heart*, in every respect quite healthy, except in the muscular portion of the left ventricle. Here is *seen a black softened spot about the size of a small pea*—and penetrating nearly through the walls of the ventricle, it is of precisely the same appearance as some of the smaller spots on the right lung, and which continued a black semi-fluid matter. *Abdomen, Liver*, considerably—(one-third) enlarged. Peritoneal coat adherent to the diaphragm and slightly so to the stomach, congested, but otherwise of a healthy appearance. *Omentum.* slightly injected. *Spleen*, slightly enlarged. other viscera healthy. *Jessore, 15th April*, 1848.

PREPARATIONS.

Museum of Bengal Medical College.

Aneurism in Europeans in India.

247. *The semilunar valves*, diseased, rounded, hardened and incapable of accurately closing the vessel (the aorta), which is seen beyond the valves to be dilated unequally ; forming the first stage of aneurism. One or two small aneurismal sacs are already formed, where the internal and middle coats have ulcerated, from the irritation of the bony and cartilaginous deposits, with which they abound. The membrane is greatly thickened, and may be seen to constitute the diseased valves. The external coat alone forms the aneurismalsac.

118. A still more serious from of the same *disease of the valves* (*semilunar*)—shewing the impossibility of the vessel being completely closed owing to their thickened, bony, ulcerated state.

245. *Thoracic aorta diseased* and thickened from bony and cartilaginous deposition.

246. *Aneurism of coronary arteries.*

250. *Aneurism from ascending and transverse portion of the arch of the aorta.* The aneurismal sac, springing from the root of the aorta increased in a direction upwards and backwards. till it attained the size of a closed hand. Now, its progress being arrested by the

root of the neck, it could only obey the law of increase, by insinuating there a small secondary cyst, about the size of a little orange. The neck of this secondary sac still bears marks of the constriction which it had undergone. By its weakness, it gave way to the arterial impetus, and its laceration produced death.

Atheromatous depositions of the coats on the vessel, attest its diseased condition, and patches of lymph on the surface of the heart shew that the disease was general. It is a most beautiful preparation, and affords a clue to the more complicated morbid phenomena observed in the next No. 534.

534. It will be more easy to explain the intricate details of this preparation, upon the supposition of an *aneurism of the innominata supervening upon aneurism* of the aorta, than in any other way. This large aneurismal sac of the innominata, opening below into the arch of the aorta, and above into a secondary cyst, pushed up into the root of the neck, like the last preparation, (No. 250,) whilst by its increase outward, it nearly closed a primary aneurismal sac of the aorta, its pressure backwards would have cured itself, having almost entirely closed the innominata, but that it was still subject to the law of increase, by its free communication with the aorta. This view differs from that of Mr. O'Shaughnessy (stated in the Transactions of the Medical and Physical Society, p. 327.) to whom we are indebted for this interesting specimen.

The preparation, however, is of such rare value, and bears so directly upon the modern surgical doctrines, respecting the cure of aneurism, that it may well deserve a longer and more careful analysis,

The aorta, even in the soundest portion that has been preserved, is loaded with yellow deposit. This diseased condition of the vessel has given rise to, first, an aneurism, which is seen to spring from the *ascending portion*, and is quite distinct from the second later and larger sac. By its mode of communication internally, a round smooth lip, which is similar in character to all the other aneurisms, it contrasts with the wide irregular opening, which exists between the aneurismal sac of the innominata, and the summit of the aortic arch, and which probably took place at a much later period. For, admitting this large sac to have sprung directly from the summit of the arch, we cannot account for the extent of its base, nor for the want of a neck or lip. Aneurisms do not spring out at once by so wide and extensive a base.* Whereas it is shewn to spring from the innominata, by the round smooth ring still observed in the innominata itself; and in my opinion, this ring cannot be accounted for on any other supposition, than that of an aneurism of the vessel. Taking it for granted, that such was the case, we may thus recapitulate its effects.

1st. The aneurismal sac has nearly closed, by its pressure on the neck, the older aortic aneurismal cyst, which is seen to project from the ascending portion of the vessel. The larger sac of the innominata almost closes it "like a valve."

2nd. By its backward, reflex, and upward increase, it has pressed upon, and almost obliterated, the innominata itself, affording a rare instance of such an attempt at the spontaneous cure of aneurism in this situation. The whole length of the vessel, from its origin, to within a line or two of its division, being flattened, and obliterated, or destroyed, and only distinguished as a raised cord, by the original outline. The space left just below the division must have carried the blood from the carotid to the subclavian, before the application of the ligature.

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* *See* Scarpa—translated by Wishart, p. 105.

3rd. From the downward pressure of the cyst, and upward pressure of the blood, the coats of the aorta, thus assaulted both ways, have at last given way, forming a wide and open communication at the bottom of the cyst.

4th. The increased impetus, now acquired, is followed by the production of the cervical tumour, mistaken during life, for aneurism of the carotid and tyed, as seen by the ligature.[*]—This sac has not burst, having been greatly defended by layers of coagula, offering a fine contrast to the state of the secondary cervical tumour, as noticed in the last preparation, No. 250.

5th. Besides these two, which form the great bulk of the preparation, a *third* aneurism is projected backwards from the aorta, into the trachea immediately above its division, encroaching most on the left bronchus, filled up with firm coagulum, united by fibrine to the cyst. Mucous membrane of the bronchus, thickened and rough in this situation Again a *fourth* aneurismal cyst passes back, from that part of the great sac which "acts as a valve" to the first. It is lined with layers of recent coagulable lymph and seems to have been projected into the substance of the lung itself, immediately above the pulmonary artery : lastly, there are two aneurismal dilatations, in one of which the internal coat has given way. They are situated on either side of the attachment of the obliterated ductus arteriosus.

6th. The overgrown sac of the innominata at length gave way at its thinnest part, causing instant death, by effusion into the mediastinum.

N. B. It is the most interesting preparation I have examined and doubly valuable from being accompanied with the case, which is given at length. But it shows also, if this view be correct, that closure of the vessel will not always cure aneurism of the innominata. (See case 534. By Mr. O'Shaughnessy.)

If the second aortic sac be still considered to have originated from the arch, it will then have nearly effected the cure of the first aneurism, and will have gone far to cure itself, upon Brasdor's principle, having effectually obliterated the innominata. This is further illustrated in the next preparation, No. 658.

658. *Aneurism of the aorta.* The aneurismal sac is seen springing *from the transverse portion of the arch* ; in shape it bears a strong resemblance to a small heart. It occupies the anterior mediastinum, its base being on a level with the upper border of the sternum, its apex corresponding with the upper border of the third rib, keeping the centre of the sternum.

It appears to be of old standing,—the walls are thick, firm, and white—no thinning of the bone seems to have taken place ; and the dysentery, of which the man died, has so reduced him, as to admit of the sac being filled with firm coagula of blood, excepting a small part of the centre. The descending portion of the aorta, and ascending portion also, are partially obstructed with coagula, the innominata, its branches, and left carotid, are completely closed. An effort having been made, during the existence of this low state of the system, for the entire cure of the aneurism, by plugging up the principal vessels in the neighbourhood with coagula. (Brasdor's principle.)

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[*] (See Aneurism of Innominata, by J. Adams, M. D., Trans. of Medical and Physical Society of Calcutta, Vol. 1. p. 227—A stopping up of carotid and subclavian arteries, *nipple like process on the sac of the innominata*—and aneurism of the arch of the aorta.)

The heart is very small for an European.—Case by Dr. Jackson. No. 658.

671. *Aneurism of the aorta.*—This vessel appears to have been much dilated—and then, to have given way at the *junction of the ascending with the transverse portion of the arch.*—The blood formed a diffused aneurism in the mediastinum anterium, the size of a fist, making its way towards the left side, extending from the lower edge of the first rib, to the upper edge of the fourth rib, bulging out the sternal ends of the second and third, which are partially absorbed. The original sac, in the most prominent point, is as thin as the pericardium, but strengthened internally by a buttress of coagulum; the layers varying from hard, firm, nearly colourless fibrine, to recently effused blood. Heart large, vessels healthy, trachea large, bronchial glands partly indurated with tubercular or calcareous deposit, partly suppurated, lining membrane (mucous) of bronchi thickened opposite the glands. *The thoracic duct, on right side is obliterated by pressure,* and plugged up by coagula, at the junction of the transverse and subclavian veins, with the vena cava descendens. Case by Dr. Jackson. No. 671.

378. *Aneurism of the aorta, springing from ascending, and transverse* portions of the vessel, of large size, extending from the clavicle to the fourth rib, and for a hand's breadth outwards; making its way to the outside of the chest, by destroying the walls of the chest, and bursting in this direction. Walls of the sac whitish, consolidated and smooth. An attempt has been made to heal the breach in the sac by effusion of recent coagula. Aneurism of long standing. Heart large, right ventricle enormously hypertrophied, left dilated, covered with layers of lymph, and adherent pericardium, vessels healthy.

256. *Aneurism of the aorta, transverse portion of the arch,* being the part of the vessel implicated. One sac of small size is observed at the root of the innominata, another as large as an orange, projects below the left carotid, the lining membrane, though loaded with atheromatous matter, has not given way in either of these, but a third aneurismal cyst, though apparently of less size, has burst into the pericardium, before it receives the strong outer coat; (as pointed by the glass rod,) has filled it with blood, distending the pericardium, oppressing the heart, and implicating it also, in the inflammatory action by which the layers of lymph have been produced.

254. *Aneurism of the descending portion of the aorta,* an aneurismal dilatation exists also at the ascending portion. The thickened and diseased state of the lining membrane well shewn. The sac beyond the curvature is large and empty, to this is attached a secondary

sac, the size of a walnut, which has given way by ulceration. The mode in which it destroyed life, by bursting into the œsophagus, is beautifully shewn. Vessel loaded with atheromatous deposit between the dilatations. Hypertrophy of the left ventricle enormous, owing to the large empty sac.

743. *Aneurism from the descending portion of the arch of the aorta*, (apparently) the old dilatation of the artery lined with coagulated lymph. Sac of the aneurism, stuffed with coagula, has ulcerated and caused death. The vessel below the sac is constricted from pressure of the sac, so that during life little blood could have flowed through the aorta, indeed adhesive matter has been thrown out as if nature intended to close it. (See also No. 534.)

253. *Aneurism from the transverse portion* bursting into the chest; the dreadful inflammation it gave rise to is well displayed.

122. A magnificent specimen *of abdominal aortic aneurism*, the whole aorta is seen in an aneurismal condition, a dilatation at the arch, its coats thickened, dilated, covered with atheromatous deposit, and a large sac below the diaphragm ; heart enormously hypertrophied.

Aneurism of 2nd class of Arteries.

532. *Aneurism of the right carotid*, fatal by bursting externally, the skin is preserved adhering to the sac, and shows the ulcer through which the hemorrhage took place.

258. *Aneurism of the external iliac artery.*

CASES.

ANEURISMS. No. 671.

(*By J. Jackson, Esq., M.B.—Reduced from Hospital book.*)

July 24th.
Leeches x.
Pulv. Jalap. C. ʒi.
Ice application.

William Butler, a seaman, a man of colour, American, states that the disease originated from severe exertion in pulling some ropes in a heavy squall at sea, about three months ago. He felt at the time as if something gave way under the axilla. Pain and tenderness throughout the whole of the right side of the chest.

About an inch and a half beneath the clavicle a tumor is perceived,—pulsation throughout its whole extent, *bruit-de-soufflet* heard immediately under the clavicle, *when the patient lies down*. The heart's action somewhat more violent than in health, numbness of the right arm, with dull pain. The pulse of the right wrist is weaker than that of the left. Feels the pain increase which occasions palpitation on exertion. Sleeps little at night from the pain, which is constant ; formerly used to be troubled with dreams. Has no constant cough, but when he does cough occasionally, feels excruciating pain in the axilla, in the neighbourhood of the tumor. Respiration natural.

Otherwise in good health, a very well made man. Bowels moved thrice by the purgative he had taken yesterday, Tongue clean ; pulse 80 in the left wrist. Derived great relief from the leeches.

25th. Leeches iv.	Feels this morning easier. The leeches give him some relief. Slept a little last night, bowels moved thrice; tumor less prominent.
26th. Leeches.	Doing much the same.
27th. Leeches. Tinct. Digit. ♏. xxv. ter die.	Since yesterday morning feels himself extremely unwell; pain in the affected side of the chest, with difficult breathing; when he raises his arm he feels extreme pain about the shoulder, has not slept during the night from the pain; tumor less prominent than upon admission. Bowels not moved for the last two days. Pulse rather slow.
June 28th. V. S. ad ℥ x. Morphiæ gr. ¼ 6 tis horis.	Complains of great soreness all over the right side of the chest, slept for about an hour during the night, heart's action somewhat violent, violent pain on exertion. Thinks the Digitalis mixture of some use in stilling the frequent palpitation:—had four stools to-day, rather loose. Pulse rather sharp.
26th. Leeches. Rept. morphia.	Bled to ten ounces yesterday at noon, and felt himself relieved for some time:—had slept better last night than on any of the preceding nights:—soreness in the chest continues the same. Bowels not moved since yesterday. Pulse as yesterday.
30th. To be leeched, morning and evening (iv.)	Had been pretty easy and comfortable throughout the night. This morning complains of great pain and uneasiness in the chest. Pulse sharp not frequent, slept pretty well. Feels easiest when lying on his chest.
3rd July. Belladonna Plaster.	Much the same, pulsation and pain comes on if he walks in the ward, cannot sit erect without discomfort, wakes suddenly from sleep with horrid dreams; tumor more prominent.
5th. Acid Hydrocyanic. ♏. iij. tertiis horis.	Same state; no relief.
10th July Contr. acid. Hydrocyan. cum. Morphiæ Muriat. gr. ¼.	Same state.
11th. P. Acid. Hyd.	Since yesterday is troubled with a painful cough which whenever it comes on, causes a tremor in his whole frame; breathing quick, expectoration copious, mucous.
14th. Pt. Ac. Hyd.	*Diarrhœa came on.*
18th. Pt.	*Dysentery.*
25th. Pt.	Numbness of right arm, cough painful, "places his body on the rack," he says; bowels regular.
August 2nd. ℞ Tinct. Catechu —Kino —Opii ā. ʒj. M. Cretæ ℥vj. M	Return of dysentery.
4th. Plumb. Superacet. gr. iij. Opii gr. j. ter die.	Aneurism increases rapidly.
5th.	Dysentery worse.
1th. Tr. Opii ʒj bis die.	Aneurism fearfully increasing.
18th.	Complains of choking.

Sept. 4th.
Inject. Tr. Opii ʒj
Aquæ ℥ii.

Dysentery continues. Aneurism felt pulsating in centre only. Pulse intermitting.

Died.*

ANEURISM OF THE ARCH OF AORTA MISTAKEN DURING LIFE FOR ANEURISM OF THE RIGHT CAROTID BY R. O'SHAUGHNESSY ESQ.—LIGATURE OF THE CAROTID—APPLICATION OF GALVANISM—DEATH—SHEWING SPONTANEOUS CLOSURE OF THE INNOMINATA, AND RETROGRADE CIRCULATION—SECONDARY CERVICAL CYST—SEVERAL AORTIC CYSTS—LACERATIONOF THE LARGEST. *Case. No.* 534.

June 22d.—Mr. T., aged 42, " There was a tumor about the size of a pigeon's egg, situated at the right clavicle, between the two origins of the sterno-clydo-mastoid muscle. It was soft, elastic, and evidently contained a fluid which could be partly pressed out of it, but returned immediately on the pressure being removed. It pulsated so strongly, that each pulsation could be seen by a person at a considerable distance from the patient. The handling of it did not prodnce uneasiness ; the skin over it was sound ; and the complexion of the patient's face and neck shewed that the circulation in those parts was healthy. The two carotids appeared to pulsate regularly, though the pulsation in the right was less distinct, and that of the radial artery of the right arm was so very feeble that it was with difficulty a slight motion could be perceived in it. The arteries of the left arm pulsated regularly, both in force and frequency. The right hand and arm were swollen, puffy, and somewhat numb, and we remarked that he had an uneasy, restless habit when talking of constantly rubbing that hand with the other, and then comparing both. His voice was clear, and his breathing free, and regular."

July 3rd.—" He had been exerting himself violently at the dock-yard the whole of the previous day, which had caused an increase of the tumor to treble its former size. Instead of being confined to the lower part of the neck, it was as high as the thyroid cartilage, and pulsated with great force ; it was excessively tender to the touch, and the skin over it was red, and inflamed. He said that in the night he was awoke by a most distressing feeling of impending suffocation, which prevented his sleeping afterwards, although the distressing sensation went off towards morning. This was the first time since the appearance of the tumor that he felt any dyspnœa, and it appeared to be accounted for from its increased size, and its pressing more now upon the larynx than before. The patient now expressed great anxiety to have the operation performed, and as the disease had advanced so rapidly, indicating further delay to be dangerous, we appointed the following morning, at 6 o'clock, for it ; meanwhile directing pounded ice in a bladder to be applied occasionally over the tumor, and that he should be kept perfectly quiet on his couch, and have no other food than bread and water."

*July 4th.—Operation—*After some " dissection I came upon the sheath which I opened immediately over the artery at its bifurcation about three quarters of an inch below which point I tied it. The internal jugular was not in the least in the way, and when the sheath was opened there was not the slightest difficulty in passing the needle behind the vessel. Before tying the knot, we examined the artery well which felt distended with blood, but its pulsation was such as gave us the idea that the circulation in it was imperfect. There was no change in the size of the tumor after the operation, but the pulsation in it was evidently less distinct, and in three hours after the ligature was tied, his right arm was certainly smaller, and less puffy than before."

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* Cœcum, colon, and rectum, found extensively diseased and ulcerated.

† Abstracted from vol. viii. Med. Phys. Trans. Calcutta, p. 306.

8 o'clock P. M. "Says he feels very easy, and the choking sensation is quite gone off; pulse in left wrist 100, and regular; no pulsation in right arm. He states that about 4 P. M. he felt a throbbing sensation all over the upper part of the chest, not severe, but very disagreeable while it lasted; it is almost quite gone off now. Applied the stethoscope over the aorta, pulsation rather loud but regular. Heard no peculiar sound such as the 'bruit de soufflet'; respiration natural."

Monday, 5th July, 6 A. M., 24 hours after the operation.—"Passed a very tranquil comfortable night, after taking gr. i. of opium at bedtime, but had little or no sleep; no pain in the tumor, difficulty of breathing quite gone, and no return of throbbing in the chest. Tumor the same as yesterday; pulsation still strong in it; bowels opened once during the night. The right arm is decidedly smaller than before the operation, he can now button his shirt sleeve, which he could not by an inch before."

Tuesday, 6th, 7 A. M. "Passed a restless night, but says he had no pain in the tumor, no dyspnœa, and no return of the throbbing in the chest. The tumor is decidedly larger to-day, pulsation in it much the same; it is soft and elastic, and evidently no attempt at coagulation has taken place; pulse in the left wrist 120, not very strong, but regular."—*Applied Galvanic Agency.*

Wednesday, 7th July, (4th day.) "We found he had passed a sleepless night, the tumor feels harder, particularly about the points punctured,—there is throbbing over the upper part of the chest, more troublesome to-day than heretofore; but on laying the hand on the chest, no unusual pulsation is perceptible, and the sounds on applying the stethoscope are the same as before. The galvanism was again had recourse to, and owing to a new arrangement of the plates, no pain was produced by its application. To have a sleeping draught at bedtime."

Thursday, 8th July, (5th day.) "The tumor feels harder to-day, but the upper and inner aspect of it still feels as if the contents of the sac contained fluid. He passed a good night, and is in excellent spirits."

1 P. M.—"The needles were again introduced at different places, and the battery applied, which was so very active, that it gave a great deal of pain, and could not be continued long. During galvanization, his breathing became resonant, and he coughed incessantly. On withdrawing the needles, a few drops of a brown yellowish sanies escaped from the puncture of one of them."

Friday, 8th, (6th day.) "Slept tolerably well after a grain of morphia, but was much annoyed by the cough, and during the night he experienced great difficulty in swallowing. The tumor feels very hard to-day except at the point before mentioned, but is not reduced in size, and the pulsation in it is still strong."

Saturday, 9th, (7th day.) "Passed a restless night, constantly coughing; his breathing is remarkably loud, but he says he feels no difficulty in respiration whatever position he may place himself in. He complains of a severe pain in the right shoulder which came on in the night."

Sunday, 10th July, 7 P. M., (8th day.) "Slept well, cough less troublesome: tumor the same as yesterday; he has no pain in it, but it pulsates more strongly; no difficulty of breathing or pain in the chest; pulse very quick. The expression of his countenance is haggard and depressed, and altogether our opinion was unfavourable as to the result of the case ; yet apprehended no immediate danger."

"On calling at 8 P. M. to pay my evening visit, to my great astonishment, I found him dead. His widow said he passed a most comfortable day, and more than once expressed how well he felt. A friend was with him about 6 o'clock, to whom he talked a great deal, and in good spirits. A little after 7 o'clock he got off his couch, and in attempting to walk across the floor to one of his children, who was crying, he fell on his face, and when he was raised (almost immediately) he was found to be dead. He had not made the slightest struggle before expiring. I found the tumor in the neck was much smaller, and the skin over it loose and flabby, from which I felt certain the aneurism had burst internally,"

ANEURISM OF THE ARCH OF THE AORTA—CLOSURE OF THE INNOMINATA AND ITS BRANCHES, &c. *Case of No. 658.*

(*Case under J. Jackson, Esq. M. B.—Reduced from Hospital Book.*)

John Macky, a seaman, aged 40, admitted into hospital June 23d, 1842, with pleurisy. This was greatly relieved by the 3rd of July.

July 3rd.
Cont. Mist.
Tinct. Opii.
Vin. Colchici.
Ant. Tart.

It is noted, that "the pain is circumscribed, occupying about three inches of the mammary region of the right side," aggravated by forcible inspiration.

15th.
R. Pil. Hyd.
Pulv. Scillæ.
Ext. Hyosc. ā
gr. ii. ft. Pilul.
ter in die.

Has no rest during the night, pain in the mammary region as before ; on drawing an inspiration, feels pain in the spot, cough severe during the night, scanty mucous expectoration. The blistered surface prevents percussion over the painful, circumscribed spot; a clear sound elicited when the other parts of the chest are percussed. Mucous rattle over the different parts of the chest, bowels relaxed, moved about four times in the night, only once this morning. Tongue thinly furred and white, pulse small.

19th. "Fainted twice this morning."

23rd.
R. Pil. Hydr.
P. Digital. ā
gr. ss.

Pain in the same spot as before, slept pretty well. Percussion over the chest gives a very clear sound, and no dulness whatsoever, over the painful region, (mammary, right.) The chest was measured, and both sides found nearly symmetrical,—half an inch difference only, in favor of the right side, on measuring the chest from the middle of the sternum to the spine. Pulse frequent, full, compressible.

25th. States that he feels himself very easy to-day ; whenever he rises, it is with difficulty he lays down in bed again,—feels his position in bed comfortable, with pillows placed under his back. Pulse as before—tongue looks very unhealthy, with brownish fur. Feet œdematous.

29th. Pt. Pain in the same spot. About two inches below the sternal extremity of the clavicle a slight swelling is perceived (observed now for about four days) pulsating, and possessing all the characters of an aneurism. Sleeps little at night, bowels regular. Whenever he draws an inspiration, the breath catches in the painful spot. Pulse quick, full, has cough occasionally.

August 1st. Continue Pills, and an Opiate on recurrence of the pain. Tenderness and pain above the mamma for two inches extent. Breathing was very difficult and painful last night, coughed much. Pulse frequent, small and hard. The swelling beneath the sternal end of the clavicle, still observed, but no increase in size for the last two days. A mucous rattle heard nearly all over the chest—a suppressed respiration at the painful spot, percussion gives a clear resonance, with slight dulness over the right mamma.

3rd. Pain in the chest constant, felt a severe lancinating pain this morning, relieved by laudanum, slight swelling in the suspected aneurismal spot, but the pulsation is very distinct.

4th. Pt. Œdema in the limbs increased.

5th. Pt. Has been easy, and comfortable, without any return of the pain since yesterday. Slept pretty well. Inspires pretty easy. The aneurism (suspected) preserves the same characters.

9th. Pt. Has had no pain the last two days, but this day the pain has returned and is constant in its old situation; in every other respect doing the same as before.

11th. Pt. Omit. Digitalis. Pain in the chest was severe yesterday evening. No cough and difficulty of breathing, but on a forced inspiration, the pain above the right mamma catches the breath. Pulse feeble, greater fulness about the spot suspected to contain an aneurism, and the pulsation in its whole extent very distinct.

12th. The paroxysmal pain in the chest returned yesterday evening, and he was suffering for about two hours with pain and orthopnœa; pulse slow, hard.

" Complains of a soreness across the chest."

15th. The soreness across the chest continues.

19th. Pain in the back, and soreness about the sternum, continue.

22nd. Opium and Acetate of Lead Pills. No appetite, and has not taken a morsel of food for the last two days. A pulsating tumor still perceptible.

Dysentery came on.

August 27th. Sinapism to abdomen. Pain in the back and chest unaltered, strained a little at stool this morning, and the stool consisted of slime and blood; no pain in the abdomen. Had no sleep last night, pulse jerking, tongue very unhealthy, he is very weak, exhausted, and bloodless.

30th. The same constant pain, and catch in the breathing; feels very weak and sits up with difficulty in bed. The most comfortable position however, and one which he preserves unchanged, is reclining in the bed, propped up by pillows. Bowels regular, pulse jerking. Has, as usual, his anodyne draughts every night.

Sept. 1st. Hands cold, pulse feeble, skin clammy, has great dyspnœa.

Sept. 3rd. Camph. gr.iij. ter die. Yesterday evening the hands were very cold, and he had passed three or four stools, but now doing better, slept pretty well last night. Vomited twice or thrice, passed five or six stools this morning, one last night. No pain in the abdomen nor in any part of the body ; very weak ; has disinclination to speaking ; extremities rather cold, pulse quick.

5th. *Died.* This case is *thus far reported by Mr. Loos, Ceylon Student.—Also case of No.* 671.

Sectio Cadaveris.

Thorax.—A saculated aneurism at the standing aorta. *Heart*—pale ; extensive adhesion of the left lung to the chest. The lungs, particularly the left, congested. *Abdomen* (it is said) presented no morbid appearance.

PRACTICAL OBSERVATIONS ON THE ANEURISMAL PREPARATIONS.

These preparations fully illustrate the observations of the most eminent pathologists, that aneurism is rarely a local affection, but is usually preceded by disease of the arteries generally ;—commencing in the internal or serous coat. By some the alteration which it presents, is called atheromatous,* steatomatous, fungous and scaly degeneration. Yellow spots, scales and cheese-like concretions, being terms elsewhere employed.† In one preparation, No. 247, we see " the highest degree of this morbid disorganization, we find on the inside of the artery, true ulceration with hard and fringed edges." And we see, when the internal and middle coats have been perforated, that the external alone, in form of an aneurismal pouch, resists the irruption of blood.

There is strong reason to believe, in the occasional healing of such ulcers, without the production of aneurism (see No. 620), where cicatrization seems to have really occurred.

We find so great an authority as Baillie, affirms " that this change takes place more or less in all aneurismal arteries,"‡ a knowledge therefore of this fact, ought to guard us from over sanguine expectation in operating ; for this degeneration of the arterial coats, is the most frequent cause of the fatal hœmorrhages which take place, *after* the application of the ligature, as well as of their " giving way and becoming aneurismal."§

However, we have one instance, of a fair and healthy portion of the artery existing in connection with aneurism of the carotid, sufficient for the application of a ligature (No. 532) ;—yet this preparation plainly tells us, (ore rotundo) that the unfortunate patient bled to death. The opening through the skin, into the sac, proves this, and the whole of the scene, so fearfully described by that illustrious Surgeon, J. Bell, in his eloquent argument for the ligature, rises at once, before us. Had this poor creature no surgeon ?—did he come too late ? This only is certain, there is no case, and we are left to wonder why, when the carotid has been tied (in Bengal) in such doubtful cases as fever,|| epilepsy, headache, paralysis and hemiplegia ;—why it should *not* have been secured in so plain a case as this.¶

Far more honorable to the operator, and creditable to our profession, is Mr. O'Shaughnessy's preparation, No. 534, where the disease being suppos-

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[*] Carswell.

[†] Scarpa, by Wishart, pp. 83, 89 and 90.

[‡] Morbid Anatomy, p. 18.

[§] Wardrop. Cyclop. Pract. Surg. p. 207.

[||] Clutterbuck.

[¶] Preston Med. Transactions, Calcutta, Vol. vi. p. 395—Vol. v. p. 350.

ed to exist, the carotid was at once secured. But this also, brings us acquainted with another cause of failure, *mistake in the diagnosis* (see case p. 8.)

These considerations have led some very eminent surgeons to condemn operations, excepting upon arteries of a certain class as dangerous.[*] They have preferred other means, which they considered less objectionable than the ligature, namely, depletion, compression, and starvation, or all these combined, with the external application of cold. How nearly this plan (or the modification of it recommended by Velpeau) has succeeded in No. 658 and 671, is manifest, and should preserve in us, a well grounded hope of success.

Again, a third consideration presents itself, from examination of these preparations, one also of great practical importance, in some methods of employing the ligature, *viz. That when we employ the ligature to close a vessel, the vessel may be already closed.*

For instance, in No. 534, although it is related as a case of aortic aneurism, " mistaken during life for aneurism of the right carotid," it would yet appear that an impression existed during life (which I think is greatly confirmed by the preparation examined after death) *that it might be really aneurism of the innominata,*[†] hence it is said " we argued, that by tying the carotid, we would be only assisting nature, in bringing about a spontaneous cure," that is upon Wardrop's principle of tying " *one of the branches of a* diseased trunk."[‡]

But here, that very object aimed at in tying the carotid, i. e. the obliteration of the *innominata, nature* had already effected without a ligature. Yet was there pulsation in the carotid, and in the subclavian also, for the innominata although quite impervious at one part, had yet a retrograde circulation continued through that part which was pervious. This will be again considered, but the fact I wish to bring forward, as well worthy of observation, is this, that in another remarkably analogous case, obliteration had been equally produced, (Dr. Adam's case) and also in No. 658 of our collection ;—in both these instances *without a ligature.* It may therefore perhaps be doubted whether or not, some of the cases recorded as cures by the ligature, were really such. However this may be, here are three cases, where nature without such assistance stopped the circulation through the innominata; it will appear therefore that the ligature (of No. 634) was far from assisting the spontaneous efforts of nature, but it could not have been foretold, that it would counteract any existing effort at restoration. My object in noticing it now, is to deduce from this case itself a plan, by which it may be foreseen in any similar case. It is this. By pressing on the right carotid, the pulse at the right wrist will stop, as certainly as by pressing the subclavian. For after the innominata was closed at its lower part, the blood reached the right arm by a retrograde course *down the carotid, to the subclavian,* through a portion of the innominata, left at its upper part, equal to the caliber of the subclavian itself. The proof of this is afforded, both by observations made during life, and also after death ; the first recorded in the history of the case, the last in my own description of the preparation.

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[*] Baron Larrey observes (Clinique Chirurgicale, Tom. iii. p. 138.)

" C'est au moins dans tous les cas une œuvre bien philanthropique que celle qui peut épargner à un malade une opération aussi douloureuse, aussi difficile et d'un succes aussi incertain que la ligature à l'artère sous-clavière, à l'axillaire méme, à l'iliaque externe, à l'origine de la crurale et aux carotides primitives. Aux yeux de l'humanité, le chirurgien aura sans doute, aussi plus de mérite à guérir les malades atteints de cet accident, avec des moyens qui ne mettent point leur vie en danger, que s'il les soumettait à des opérations qui peuvent avoir des suites fudestes."

Pelletan Clinique Chirurg. p. 80, Tom. i. and J. Adam, M. D., Trans. Medical Society Calcutta.

[†] " Dr. Murray, Inspector General of Hospitals, came to the same conclusion we had arrived at, namely that the tumour was aneurism of the right carotid at its root, *or of the innominata.*" Medical Transactions, Calcutta, p. 309.

[‡] Encyclopedia of Practical Surgery, p. 220.

The circulation into the arm of the right side, came then, through the free inosculations maintained by the (right and left superior thyroid) arteries of one side of the neck, with those of the other, hence, during life, the "pulsation of the right carotid was less distinct," also "that of the radial artery of the right side, was so very feeble." Hence, during the operation, although the artery was "distended with blood, its pulsation was such as gave us the idea that the circulation in it was imperfect." The blood being in fact transmitted through the branches of the left side of the neck, which were emptied into the right carotid. Small arteries comparatively, (like the superior thyroid, emptying into a larger trunk, (the right carotid,) brought the blood, with, of course, a greatly decreasing motion, down in this retrograde manner, by a canal left at the top of the innominata, to reach the subclavian and upper extremity. Had hemorrhage taken place after the ligature, it would have been from the part above the ligation. When the ligature was applied we find it recorded "*No pulsation in the right arm.*" In my plan, therefore, the finger on the carotid would do temporarily, what was permanently effected by the ligature. Whilst the whole argument proves, that had a ligature been placed on the subclavian also,* it would have had no more effect upon the innominata, than the one actually placed upon the carotid.

This preparation is valuable in this respect also, as shewing the power which nature possesses, to carry on the circulation, although in a circuitous manner, *by the original channels.*

The aneurismal sac in the lungs, as well as the tumour pressing on the larynx, both apparently very recent, must have increased the dyspnœa. The one compressing the bronchus is much older.

But on the whole, we read with astonishment that disease of the vascular system, so enormous, and so extensive, should have shewn so little outward or inward sign of its existence.

We turn with deep interest to the progress made towards reparation and cure in Dr. Jackson's two cases. We see scarcely any other of the numerous aneurismal cysts which have been described filled with coagula, in none other are the neighbouring arteries so filled. We have the cases, which prove, that by treatment and not by chance, these had progressed so far. Of the treatment employed in the other aneurisms, as we have no cases, we cannot speak. But in these two, No. 658 and No. 671, by calming the circulation, frequent bleeding, external application of ice, without abstracting much blood, the success seems to have been as great as in Dr. Adam's heroic† application of Valsalva's plan.

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* This was I understand proposed.

† The man was bled to two hundred and fifty ounces besides leeches.

Dec. 28th, 40 ounces
„ 29th, 60

100 ! ! !

(*Pathological Preparations, continued from p.* 6.)

HEART—*Changes effected from without.*

Nos.

754. *Enormous dilatation of the arch of the aorta,* with hypertrophy and dilatation of the left ventricle, and dilatation also, of the cavities of the right side of the heart.

The aorta is so much dilated at the summit of the arch, as to be equal to four fingers breadth. It decreases again towards each extremity of the arch, forming a sort of fusiform aneurism. The internal (serous) coat is very extensively diseased, puckered, and studded with cartilaginous, bony, and steatomatous deposits. The left carotid, and left subclavian are contracted by the thickening of their coats.

The ascending and descending cava, and pulmonary artery, are very much dilated, two fingers are easily admitted into the last, there is universal adhesion of the pericardium to the heart.

A powerful, tall, muscular, European sailor, age 34, very hard drinker, died of dysentery of four days duration.

See a similar case, No. 754.

753. Drawing the size of life, of displacement of the heart from an *enormous aneurism of the abdominal aorta.* See case 753, (*also plate.*)

259. *Inflammation, and universal adhesion of the pericardium,* apparently recent. The heart compressed, the serous surface of the pericardium covered with piliform or filiform villi.*

251. *Inflammation of the serous membrane investing the heart and pericardium.* Shewn by large patches of effused lymph, enlargement of the whole heart, fatty deposit on the heart and pericardium, forming a remarkably striking contrast with the next preparation.

260. *A most singular atrophy or wasting of the whole heart,* the coats of both ventricles being attenuated, till they do not exceed the usual thickness of the auricles. This singular change is accompanied with fatty degeneration, and appears to depend on the diseased and aneurismal condition of the coronary artery, upon which, of course, the nutrition of the organ depends.

621. *Transposition of the heart.* In this magnificent preparation we observe that the *heart is completely displaced,* being transposed from the left, to the right side of the chest. The heart is shrivelled, and compressed to half the size it would naturally have in a strong tall European. The right lung is studded with tubercles. The left, so shrunk and atrophied as hardly to exceed in size three fingers. It is matted with a thick layer of coagulable lymph, which coats the whole of the pleura, and stretches across, in the form of thick organized bands, from the lung to the pleura. The whole of this immense bag was filled with serous fluid ; which had pressed *aside* the heart, and pushed *up* the lung, which became still further compressed from the contractile nature of the false membrane itself. The organic mischief, resulting from this produce of

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* The *hairy* heart.

inflammation, may be judged of, by what has taken place in the next preparation, which is exceedingly curious indeed.

663. *Ossification of the heart.* The first aspect of this singular specimen is that which has been occasionally reported (perhaps with no better reason) as a total absence of the pericardium.* A more careful investigation shews universal adhesion and consolidation, nay, absolute confounding of the pericardium, with the proper structure of the heart itself. The thick organized bands of coagulable lymph, the contractile tissue, hang loose and shaggy from the apex of the heart, and even here are evidently of old standing. Whilst in other situations, this false membrane has contracted upon the heart, and actually so compressed it, that the right ventricle even with the addition of this coalescing membrane, is no thicker *than an* auricle, and would not contain more than a table-spoonful of blood. There is moreover a horny hardness of this new product, (contractile tissue,) which must have greatly embarrassed the function of the auricle. This seems to have been compensated for, in some measure, by a remarkable dilatation of the canal of the pulmonary artery within the heart, which is more capacious than the right ventricle itself, and is closed below, by an artificial valve of coagulable lymph, converting it into a sort of third ventricle. The auricle is contracted, large masses of bone have been developed in the substance of the false membrane covering its roof, especially between it and the root of the pulmonary artery. The whole auricle looks like dried skin or horn. The left ventricle is hypertrophied, covered with a case, apparently degenerated pericardium, partly horny, partly bony, purposely divided to shew its thickness. The muscular structure has greatly degenerated. On the whole, we are lost in wonder, how this organ could, or did perform its functions, but can only reason from the specimen before us, for *there is unfortunately no case.*

HEART.—*Changes effected from within.*

620. *Inflammation of the heart.* A most beautiful preparation, shewing active inflammation, of the substance of the heart, as well as of its lining membrane. The injected state of the vessels outside the heart, is even yet apparent, also the redness and softening of the muscular structure towards the apex, and lastly the effusion of organized lymph; which is seen to line, as a false membrane, the whole of the right auricle. This inflamed state of the heart's muscular structure, is accompanied with fatty degeneration. The aorta is dilated, and greatly diseased, its coats still bear evidence of the yellow deposit, and small depressions exist, having a strong analogy with the cicatrices seen after ulcers have healed in the intestines. There have probably been ulcers here, the small aneurismal dilatations of the external coat confirm this view. The root of the innominata is greatly contracted.

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* Corvisart maladies du cœur, p. 60—
" Pleusieurs anatomistes disent avoir observé le défaut absolu du péricarde. Sans doute dans le plus grand nombre des cas, ils se sont trompés en prenant l'adhérence intime du péricarde au cœur pour l'absence même de cette membrane."

558. *Polypus of the heart.* The organized clots now seen, were with difficulty separated from the wall of the ventricle, leaving its serous surface rough where they had been attached. The opposite surface of the clot, its free surface, is seen to be covered with a fine membrane. That such attachments may take place, even in an organ so constantly moving, is shewn by the organized membrane in the last preparation, 620, and still more plainly manifest in the preparation following, 750.

750. *Inflammation of the serous membrane of the heart and arteries.* To demonstrate this more perfectly, I have severed the right heart from the left, by an incision through the septum. As the inflammation affected nearly the whole of the vessels and cavities, its effects may be traced in the usual course of the blood. The venæ cavæ were of dark red appearance, a vivid red line all around the auriculo-ventricular opening. A mass of organized fibrine lined with a delicate membrane, stretches from the auricular appendix to the apex of the ventricle, the plastic nature of the secretion is shewn by the impression, which it preserves of the columnæ carneæ. A prolongation of it, also lined by the same fine membrane, and attached by equally delicate connections with the heart, is continued in to the pulmonary artery; the valves of this vessel are only slightly reddened, and here the redness ceases. The left auricle is not inflamed, but the mitral valve has a vivid redness, in some parts a thickening, and an opacity in others, and an effusion of lymph at its free surface, as well as around the cartilaginous depositions. It contains a small clot, coagulum, or polypus, adhering, and distinctly united by a false membrane. The auriculo-ventricular opening is permanently *patent*;—considerably dilated. The lining membrane here thickened and opaque. The aortic valves of a deep vivid crimson, opaque, and thickened;—patches of yellow deposit at their attachment to the aorta. These occasionally present themselves in the arch, also whilst the whole vessel, even to the abdomen was of crimson hue, internally;—especially where it passed *under an abscess in the liver with adhesion to the diaphragm*, of which the poor man, an European, died.

640. *Diseased valves.* In this preparation we see the effects produced by inflammation continued in a chronic form. It shews a cartilaginous state of the mitral and tricuspid valves, thickening of all the valves; this thickening and opacity pervading the whole serous membrane. Dilatation of both auricles, an hypertrophied state of both ventricles, to overcome the resistance offered by the valves. The patient suffered from effusion, in the form of general anasarca, hydro-pericarditis and hydro-thorax. Had a remarkable irregular pulse, intermitting every second or third stroke, accompanied with *bruit de soufflet.* (See another case 640.) A more surprising and fatal form of these extraneous depositions in the heart, is shewn in the next.

577. *Enormous dilatation of the right cavities of the heart.* The general aspect of this preparation is widely different from the usual form of the human heart. It leads us at once to expect most remarkable changes in the state of its cavities. We have seen in one prepara-

tion, No. 663, that the right ventricle would hold no more than a table-spoonful, when the same part of this heart before us was fully dilated, in the recent state, it would hold twenty times that quantity. But to see how this state was produced, we begin with examining the left auriculo-ventricular opening. At first sight it appears *closed by* a newly formed bony ring, this *will* however admit a large quill, and *will not* admit the little finger ; and through this opening, rigid and unyielding as it is, the whole circulating blood of the body had to pass, and of course, all the parts behind the obstruction suffered dilatation. The one next to the obstruction, the left auricle, is greatly dilated, its delicate serous coat looks like leather, presenting rounded elevations. The vessels in the lungs, are not preserved, but the pulmonary artery within the heart, is dilated like a third ventricle ; the right ventricle enormously dilated, the columnæ carneæ thickened or hypertrophied, the valve next the auricle thickened like leather, and immense dilatation of the auricle itself above, and also of the venæ cavæ : proving the extraordinary stagnation and accumulation of blood in the cavities, (so far as circulation is concerned,) behind the unyielding bony obstacle to the transmission of blood from the left auricle to the aorta.

827. *Dilatation of the aorta, atheromatous deposits upon its serous coats, which in the recent state was of an intense, vivid red, or vermilion hue with abrasions, ulcerations, cicatrizations.* Congested state of the serous coats of the veins and pulmonary artery, softening of the heart, which was of a very dark red color, especially the serous (internal surface.) This state followed *obstruction of the thoracic aorta*, from pressure of a bony tumour. From a native woman.

CASES.

HEART.—*Changes effected from without.*

DILATATION OF THE ARCH OF THE AORTA WITH HYPERTROPHY OF THE HEART AND HYDRO-THORAX. No. 754.

(*By Allan Webb, Esq.*)

Thomas B., æt. 66. Had good health till December last, when he was seized suddenly with a feeling, as of instant suffocation. Was bled, he says to two quarts—has never been well since, having fits of urgent dyspnœa every night. Is a hale looking man, dark hair and eyes, legs œdematous, since V. S. 7 P. M. *Fit of dyspnœa now on him.* Face anxious. Respiration laborious, 32. All the muscles subservient to respiration, in strong action ;—is obliged to be supported nearly upright. Inspiration, full, gasping ;—expiration prolonged ;—walls of thorax rise as a whole, no contraction of intercostal spaces. Percussion dull, but lungs seem permeable to air ;—*râle sifflement* heard on expiration, action of heart accompanied by *unusual impulse*, is very irregular ;—pulse irregular, fuller and stronger on right side than on the left, 116. Tongue furred, grey, bowels relaxed, passes much flatus.

February 10*th.* Easier in the morning. Dyspnœa returned as before in evening, lasted till morning.

11*th.* 4 P. M. Easier, does not groan now;—pulse irregular;—face anxious

12th. 10 A. M. Much as usual, had no sleep in the night from dyspnœa; very faint, pulse feeble and intermittent.

1 P. M. Fell down *dead* in bed whilst eating. Heart is still heard to pulsate now;—no respiration;—face purple, jugulars distended. On opening one, a few ounces of dark blood flowed;—every evidence of vitality ceased in half an hour.

Examination forty-eight hours after death.

Head.—Shewed thickening and opacity of arachnoid with effusion of serum into ventricles.

Chest—Great effusion of serum in both sides, two quarts altogether. No adhesions of *lungs*, but they did not collapse, no tubercles seen. On afterwards slicing them, they were found to be infiltrated with serum. *Bronchial tubes* loaded with mucus. *Trachea*—brick red color. *Larynx* and epiglottis of more florid hue, and small particles of food in the cavity of the glottis. *Heart*—enormously enlarged, left ventricle not only dilated, but exceedingly thickened; arch of the aorta dilated, and studded with opaque spots of yellow; *right* ventricle enlarged but not thickened. Both ventricles as well as the large arteries filled with dark black coagula. Patches of a whitish grey colored lymph on the external surface of the heart, and also of the aorta. *Abdominal aorta* ossified in great part, especially about its bifurcation, presenting also dark coloured spots like ulceration.

Abdomen.—Liver spotted with coagulable lymph. *Kidneys* indurated, externally and internally, studded with vesicles containing fluid (hydatids.)

DISPLACEMENT OF THE HEART FROM AN ENORMOUS ANEURISM OF THE ABDOMINAL AORTA. No. 753.

(*By Allan Webb, Esq.*)

This man, a tall, powerful European, fair complexion, about 40 years old, was employed in the Preventive Service. The most prominent symptoms were those of dyspepsia,(which Sir A. Cooper has observed to be not uncommon, when the aneurism is near the cœliac artery.) Nausea and vomiting were very distressing, from the sac pressing on the stomach. Towards the latter part of his disease he used to faint, when placed in the erect position, and always when going to the close stool. This made me suspect internal hœmorrhage, but the stethoscope did not detect any *bruit de soufflet,* and there was no pulsation in the large swelling existing on the left side, I did not therefore suspect aneurism. What was most surprising, there was enlargement of the whole left thorax, complete *son mat,* on percussion; and in no part could respiratory murmur be heard even by the stethoscope. The heart was seen to pulsate on the right side only.

The urine deposited a copious vermillion sediment, and was generally of that bright colour. I did not observe œdema of any part, face bloodless, pulse irregular, eyes glassy, expression anxious. This state continued two months. He died suddenly.

Examination six hours after death.

Body.—Not much emaciated—very pale,—muscles exsanguous—chest dilated on left side,—parietes of the abdomen on the same side turning black. On piercing the pleura, at the most convex part of the chest, on the left side, a quantity of blood flowed out, and was collected by a sponge. *Thorax* then exposed in the usual way. Left side of cavity, completely filled with blood, no lung at first perceived. The right lung perfectly natural and healthy. *Pericardium* contained a little fluid. *Heart* pale,—softened—its parietes thin. The right ventricle little, if at all, thicker than the auricle. Organ generally small,—compressed—*pushed to the right side*, and containing no *blood*. After removing three pints of coagulated blood, no rupture could be detected in any part of the thoracic aorta, or its branches. Left lung found at last, compressed against mediastinum, as thin as the diaphragm. *The pleura was thickened to the consistence of most fleshy part of the diaphragm, by layers of coagulated lymph, which were gradually lost in coagulated blood, about four pints of which were eventually removed.*

On turning aside the stomach and intestines, a large dark colored tumor was observed under the peritoneum, extending from the diaphragm to the pelvis.—On cutting through the peritoneum it was found amazingly strengthened by layers of condensed cellular tissue. The kidney (left) was black and flattened. The spleen also was flattened and softened, together forming the anterior wall of the cyst. On turning these aside the tumor came more into view. On cutting into its lower part about *a quart more blood was removed.* In the middle, a tumour about the size of one hemisphere of the brain, was seen, composed of laminæ, and evidently an aneurismal sac. The abdominal aorta was then exposed, when another smaller aneurismal sac, was seen on the right side, projecting out in form and size like a kidney, situated immediately below the diaphragm and opposite to the cœliac artery. On opening it, it was found to be, anteriorly, about an inch thick, the layers of fibrine having lost all trace of coloring matter. On introducing the finger within the small sac, its posterior wall was found to be composed of the bodies of the lumbar vertebræ in various states of absorption. The intervertebral substance was seen projecting into the cyst, little, if at all, altered. On turning the finger to the left, it readily glided into the larger sac before mentioned as of the size of a cerebral hemisphere ;—but the laminæ composing it were not so firm as were those of the small sac. It was thinner below, and ruptured, it contained a small quantity of dark colored, coagulated blood. *On passing the finger through the* lacerated *opening*, it passed into the third immense cyst from which the blood had been removed, as before mentioned. It was constitnted, above, by the whole of left pleura, passing under the posterior part of the diaphragm, where the denuded ribs formed part of its posterior parietes, as well as the intercostal muscles, ligamentum—arcuatum, quadratus muscle, and fascia lumborum. It terminated where the psoas joins the iliacus internus, before entering the thigh. These also were flattened, softened and helped to form it, while anteriorly, it had the flattened spleen, the kidney and thickened peritoneum. (*see plate.*)

DISPLACEMENT, OR COMPLETE TRANSPOSITION OF THE HEART IN AN EUROPEAN, AGE 24, CONSEQUENT ON PLURITIC EFFUSION FROM TUBERCULAR DEPOSITION IN THE LUNGS.—No. 621.*

(*By Allan Webb, Esq.*)

It was the impression on my mind, after a most careful examination at the first visit, that tubercular deposition had gone on to an incurable extent in the lungs ;—not to dwell upon its effects, in other organs and tissues of the body. The peculiar cavernous respiration, for a hand's breadth under the left clavicle, shewed a large vomica or cavern there, formed by the destruction of the lung. The resonance of the voice, showed it to be of long standing. The respiratory sounds heard below, in the lung of that side, and the readiness with which it transmitted the sound of the heart's pulsation, shewed it to be more or less solidified, and unfit for respiration. These observations were strengthened, and confirmed by comparison with the right lung, and by percussing, or striking the chest.

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* This preparation was put up by Dwarikà Náth Dás Basu, student of the College.

Under the *right* breast was a spot, where there was indistinct evidence of a cavern or vomica. This lung did not admit air so freely, as to lead to a conclusion of its perfect soundness, although contrasted with the left, it was a comparatively efficient organ of respiration. The heart's action was feeble, the voice at times failing. Examination of the fauces shewed great attenuation, and relaxation of the palate. The bowels had a constant tendency to looseness. On these data, chiefly, I founded my opinion.

When sent for, some few days afterwards, another order of symptoms, of far more alarming aspect had set in. He could not lie down for violent pain and spasms, which had affected him during the night, aggravated by any exertion of breathing ;—affecting, as far as pain went, the left side of the chest especially. His face was alarmed, anxious, and livid, with a peculiar imploring expression for assistance.

I bled him to faintness, though in his exhausted state a small quantity sufficed to produce this effect, he felt great relief afterwards when put to bed. Large mustard poultices, and mild pills to affect the bowels to greater secretion, were all that was attempted, after some soothing anodyne, at the time.

From that hour, he never recovered his voice, which sunk from one suppression to another, till it was at last scarcely audible even with the ear close to his lips. The respiration all this time, increasing in frequency, with the very smallest and most feeble pulse I ever felt. The expectoration, formerly so full and copious, was now suppressed from day to day. Some watery serous or mucous sputa occupying the place of the solid, rounded masses, the well known contents of tubercular vomica. I often observed that his right lung now had all to do. I found no sound whatever of air entering any part of the left lung, below the nipple. I remarked this to him, as well as that *the heart was now felt beating only on the right, instead of the left side of the chest.* It had been completely transposed, of this he was well aware, and I believe of the cause. But as he now never lay down, for any unusual motion produced faintness, that full examination which I formerly made, was no longer possible. It would have cost him his life latterly. The last week, all evidence of the vomica of the left lung had ceased ; neither by the ear, nor by striking the chest, was any indication given of air being admitted to the left lung at all.

To get up to stool was followed by faintness, so deathly, that is was impossible. Then, to change the linen was equally dangerous ; he said to me on the day he died, "I feel deadly faint even if I have my head raised." That is when his chest was brought to a perpendicular bearing on the trunk, the convulsive twitchings of the lip shewed what he suffered, though no word nor whisper even uttered it.

Now, after this, the autopsy is full of explanation.

Examination after Death.

Chest—On opening this cavity on the left side, the first aspect was that of one entire void, so far as relates to the organs, which ought to have been there ; great thick bands of adhesion traversed it from side to side ; it was full of water, but no lung ; *no heart was met with.* On pouring out this fluid, which filled a large wash-basin, the lung was found pressed to its upper and anterior part, not so big as a hand. *The heart was not in this left side of the chest at all.* Thick bands of fibrinous adhesions, one most remarkable, as thick literally as the thumb, extended from the base of the lung to the diaphragm ; this latter organ, and the walls of the chest also, were lined with new formations, or false membranes, which over the pericardium were as thick as the diaphragm. Subsequently, on examining the shrunk and atrophied lung, the large vomica with its walls collapsed, and two or three others of smaller dimensions, were distinctly visible.

The right lung was universally adherent to the thoracic walls. The heart occupying part of the space where the lower lobe should rest upon the diaphragm —but shrunk to half of its usual size, by the gravitation of the mass of water above it. The lung was, besides, inflamed, here and there studded with tubercles, in some places assembling together in hard groups, in others, soft and disseminated. One small vomica, the size of a walnut, opposite the right nipple. The air-passages were remarkably free from mucus or sputa, therefore death was sudden, immediate ; not in the lungs first, but in the poor enfeebled, crippled, and utterly overwhelmed organ of circulation, the *heart.*

Remarks.

Active inflammation of the lining membrane of the chest, the pleura, came on, the day of the sudden seizure, most probably from bursting of the vomica, this produced the pain in the side. The diaphragm, so important to him with lungs so diseased, was implicated in the inflammation, hence the spasms ; the bag of the heart was principally inflamed,—hence the unutterable distress ; one product of this inflammation was the secretion of such an immense quantity of fluid, hence the water ; another was the fibrine, hence the false membranes and bands. As this fluid increased, the lung was forced *up*, and squeezed to less than half its size ; assisted perhaps by the nature of this contractile tissue ;—change of posture, exposed him to immediate death.

We see also that the heart, when on the right side, took the place of the soundest part of the lung he had, that this was now compressed, indeed, each day shewed with almost *mathematical* or numerical precision the advance of the invading flood. In health 15 respirations are all we make at rest. But here were 30, 35, and 40 in a minute.

Abdomen—The pitiable emaciation may be accounted for, by the enlarged and indurated state of the lymphatic and absorbent glands of the abdomen,* which in connection with general preternatural tenuity of the alimentary canal, and slight ulcerations of the ilium and cœcum, were all that I observed unusual in the abdominal cavity. But I ought to mention that the œsophagus was *constricted* at its entrance into the chest, and for some way down—probably from pressure.

The Head was not opened, but from the wanderings which he experienced, there had evidently been suffusion of serum over the brain, a very common effect of long continued want of power in the heart's action.*

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* See pp 177, 178, 179.

HEART.—*Changes effected from within.*

HYPERTROPHY OF THE HEART WITH CONTRACTION OF THE VENTRICLE—DEATH FROM COMPRESSION OF SPINAL CORD.—Nos. 640 and 774.

(*By Allan Webb, Esq.*)

Sarah L.—aged 27. Pale interesting features, dark hair and eyes, fair and freckled complexion, always delicate, but had tolerable health until twelve months ago. Has been regular, since the age of 14, until four months since, when after getting wet feet, during menstrual flux it stopped, and she suffered pain in loins, and chest also, with oppressed respiration, for which latter symptom, was blistered with relief. Her legs soon began to swell, feel tense, and painful which was followed by swelling of the abdomen.

Present State.

December 1st.—There is swelling of the abdomen with evident fluctuation; less œdema of legs, but more of the head, eyes being nearly closed from it. Pulse 120,—action of heart accompanied by increased impulse. Respiration 32. Attended by "gargouilement," expectoration slight, resonance tolerably perfect, skin hot, tongue with brown fur, has great thirst.

3rd.—Œdema less, skin cooler, pulse 106, tongue cleaner, appetite same.

5th.—Œdema of legs less, abdomen less tense, bowels open, makes no more water, perspires freely at night, cough less.

7th.—Going on well, makes more water, bowels open four times in 24 hours, pulse 110.

9th.—Feels very weak, *great heaviness in head.* Tongue clean, bowels open, respiration easier, *pulse feeble, intermittent*—complains of feeling cold.

22nd.—Seized last evening with severe rigor, which lasted all night, has now, (11 A. M.) that anxious expression seen in ague, breathing forcible, pulse 130, heart's action violent, skin cold, complains of pain in head, ringing in the ears, confusion, has been delirious, pupils natural.

The large scarificator, applied to temple, divided some arterial branches which quickly yielded ℥viii. without glasses. Pupils less dilated, less ringing of ear, less heaviness of head, face less livid, respiration less forcible, heat of skin returned. Pulse fuller.

9 P. M.—Observed that she slept. Temperature of body nearly natural, no rigor. Respiration forcible, accompanied by loud mucous rattle, face not livid, pulse more full and soft. Before I could leave the room, called to her in convulsive fit, in which all the voluntary muscles partook, breathing nearly stertorous, pulse quick and strong.

Ordered sinapisms to feet, cold to head, but the poor girl died in ten minutes, before they could be applied. The jaw dropped, resolution of muscles took place, respiration stopped, and lastly the heart, some time after breathing had ceased. Thus ended the phenomena of death.

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* *See* Obs. de déviation du cœur with cases, by M. Professeur Gentrae who cites HIPPOCRATES, ABERCROMBIE, also the *Acta et Obs. Med.* ‸ 1783, for other notices—(Journ de Medicine de Bordeaux.) January 1843.

Pragæ et Viennæ.

Post Mortem Examination fourteen hours after death.

Emaciation great, skin yellowish.

Head.—A considerable quantity of colourless serum was seen between arachnoid and pia mater—throughout all the external surface and especially at the base of the brain, extending down between these membranes covering the upper portion of the cord. Indeed, this last was so compressed at its upper part as to occupy only half the canal. There was also effusion into the ventricles, but to no very great extent, choroid plexuses rather blanched. Brain generally soft, veins and sinuses full of blood (inflammation set in with rigor.)

Chest.—Half a pint of serum in left pleura, considerable œdema of both lungs, and transudation of frothy serum on slicing them. No tubercles; little alteration of bronchial mucous membrane, which might be browner than usual.

Heart—very small, left ventricle would scarcely admit little finger owing to the great thickness of its walls, and also to the cavity being still further narrowed by the production in its interior of an organized substance, intermediate in appearance, between common fibrine (coagulated) and columnæ carneæ

Abdomen.—Effusion of about two quarts of serum, liver scirrous, anterior edge thick and rounded, gall bladder contained green bile and numerous gall stones.

Pathological Preparations.

(*Continued from page* 18.)

774. *Active inflammation of the heart,* partial closure of the auriculo-ventricular opening on the right side of the heart, from effusion of fibrine. The fibrine or lymph has united by adhesion, the lips or borders of the tricuspid valve, for three-fourths of its extent. A space is left that would barely admit the tip of the little finger. The fibrine is prolonged into the auricle above as an organized clot, coagulum, or polypus;* adhering to the inflamed lining membrane, as is seen by the rough flocculent surface from which it has been torn, corresponding with a similar rough surface on the clot itself:—whilst the opposite or free surface is lined by fine serous membrane, and is pale compared with the bloody surface torn off. The clot is continued into the cava descendens. Bands of adhesion, also covered with fine membrane, connect it with the musculi-pectinatæ above, and also with the red, swollen, and puckered up borders, of the valve below. Viewed from the ventricle the closure is most complete and the adhesion most perfect; the fibrinous layers are continued for some distance along the chordæ-tendiniæ. The adjacent serous membrane of the ventricle is opaque and its cavity diminished considerably. There is a remarkable tongue-like coagulum prolonged into the pulmonary artery; pale, firm, and its extremity moulded at some distance from the tip, like the barbs of an arrow, by the valves of the pulmonary artery. It is firmly united to the right

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* *See* the CASE upon this page.

Nos. ventricle. The pulmonary artery dilated, but healthy; the left auricle has its lining membrane opaque. The mitral valve thickened, semicartilaginous ; the aortic valves healthy ; aorta itself dilated, lining membrane partly opaque, partly elevated by yellow or red atheromatous depositions. The whole heart small, its substance softened interspersed with fatty degeneration; its pericardiac covering opaque. From the body of a negro sailor, said to have died of Phthisis. *See a more chronic case No.* 577, p. 17.

775. *Organized polypus of the heart.* This preparation is very similar to the last, in respect of the extent, form and nature of the coagulum, but it appears to be of older date, and the heart is enlarged, the left ventricle being very greatly hypertrophied. In the recent state, the heart was intensely red, its muscular substance softened. The attachment of the clot, is to that part of the tricuspid valve adjacent to the pulmonary artery. One surface of that portion within the auricle is rough and bloody, corresponding to the red marks on the auricle, the free surface is smooth, pale, lined with membrane. A prolongation or pedicle, is continued into the appendix auriculæ, and has puckered it up, by dragging on it, so as almost to invert it. The principal attachment is by layers of membrane, which form almost complete sheaths for the carneæ columnæ, a larger prolongation is continued like the last into the pulmonary artery ;—more distinctly marked like an arrow head, where embraced by the valves of the pulmonary artery. Immense hypertrophy and dilatation of the left ventricle. Thickening, rigidity, and opacity of the mitral valve. Fatty deposition to a great extent of the heart generally.

From the body of an European soldier, Her Majesty's 44th, aged 38—died of immense abscess of the brain, * in which that organ is converted into a mere cyst; some time suffering from partial paralysis. See Nos. 772, 773.

251. † *The pericardium, thickened, covered with lymph,* in some places one layer upon another, giving the honey-comb appearance noticed by Hope. It is adherent outside, to the lungs and diaphragm. Within the right auricle, the coagula are weak, and easily broken, apparently only just effused at the places where the endocardium is applied to the outer membrane, through the interstices of the musculi pectinati. *Where the fibrine is thickest outside on the pericardium, there also is the fibrine thickest inside on the endocardium.* Again, at the beginning of the pulmonary artery, (that portion within the heart) where lymph is most thickly effused *outside*, there also has effusion taken place *within* the artery.

In the left ventricle, the endocardium is thick and opaque, especially about the valves of the aorta, the lining membrane is of a deep dull red, the dark colour of the inflamed muscular structure is seen in the interstices of the columnæ carneæ. The left auricle is lined externally, (*i. e.* on the pericardium,) and

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* See case No. 772, Division Brain and Spinal Cord.

† I examined this old preparation, from the Medical Society's Museum, to see if it would confirm (as it does abundantly) this important deduction, that two distinct serous membranes when in contact, may have the morbid action of one communicated to the other. It is slightly noticed at p. 15, printed by mistake.

Nos. internally on the endocardium, by fibrinous effusion. The whole muscular structure of the heart remarkably altered, infiltrated with pus, whilst the fatty degeneration extends in some places especially in the right auricle, almost entirely through it.

868. *Organized coagula covered with inflammatory crust. Endo-Pericarditis, Carditis Hypertrophy, Diaphragmitis, with Pleuro-pneumonia and vomica, from a Hindoo. See case* 868.

The pericardium is thickened and covered with lymph ; its serous surface contained some effused serous fluid. The inner surface of pericardium and the outer surface of the heart presented a villous and "honeycomb" appearance in some places, especially that near the origin of the pulmonary artery; this false membrane was rough, reticulated, harsh and rugged to the touch. The substance of the heart was injected and inflamed, the organ itself preternaturally enlarged and its parietes hypertrophied, the wall of the left ventricle more than one inch thick. The heart was however loose and floating in the pericardium, but this last united by adhesion to the lungs.

The walls of the right auricle are thickened, and its cavity filled with a coagulum, which is lined by a serous membrane, and in some parts has contracted adhesion with the thickened parietes. The free surface of the clot is covered with the same kind of honeycomb product of inflammation, seen so universally effused over the pericardiac serous surface, the membrane lining the auricle is intensely red. The auriculo-ventricular opening is partly obliterated by the coagulum, but a passage is left capable of admitting the tip of the little finger ; the coagulum is also agglutinated in some parts to the apices of the tricuspid valve. In the right ventricle a portion of that coagulum is seen prolonged and entangled in the meshes of the chordæ tendiniæ. The walls of the right ventricle are also thickened, and the cavity diminished in size. The pulmonary artery somewhat dilated, the sigmoid valves appear large. In the left auricle a small coagulum is observed, of a reddish color, but loosely adherent. The internal surface of the auricle is of a deep red color. The coagulum is united to the mitral valve, and the valve itself thickened and of an opaque glistening look. The cavity of the ventricle not diminished in size, but its parietes hypertrophied. *See* p. 30, also another case No. 981, DIVISION AIR PASSAGES AND LUNGS.

827. *A bony tumour on the left side, of the dorsal vertebræ, pressing upon the descending aorta*—dilatation of the arch of the aorta above the tumour ;—from the body of a native woman (Bengalee.) Intense vivid inflammation of a vermilion colour internally, with atheromatous deposits, abrasions and ulcerations, and cicatrization also, occasionally. There was a congested state of the serous coat of the great veins and pulmonary artery, softening and fatty degeneration of the heart itself, which when first taken from the body was of a very dark red colour especially its internal serous membrane. The woman, about thirty years old, had borne children, and was not much emaciated ; had a blister on the chest, and marks of *gools* (actual cautery) on the right groin and thigh. The left lung was adherent

Nos. to the diaphragm. The abdomen was dropsical and contained about two pints of serous fluid. The abdominal aorta was vascular and contained atheromatous deposits, and some marks of ulceration. The iliac, and femoral arteries presented a morbid appearance. The uterus small and unimpregnated, contained a quantity of fluid resembling a mixture of chalk and water. The mouth of the uterus very hard and schirrous. The veins of the abdomen were quite turgid, their internal coats were of a dark hue ; no other morbid change perceptible. See No. 750, p. 17.

1006. *Enormous hypertrophy of the left side of the heart in an European. There is also besides the hypertrophy great dilatation of the left ventricle, whilst the auricle from dilatation would contain a closed hand.* The left ventricle was full of black coagulated blood. Besides the left auricle all the vessels emptying therein were gorged with blood. There were numerous apoplectic effusions in the lung ; some as large as a walnut, many as large as a pea or bean. The whole pulmonary structure of both lungs being filled with the red glutinous product of recent inflammation. The mucous lining also of both bronchial bifurcations, swollen, and red, and filled with bloody sputa. The heart altogether very large. The right side healthy, all its valves sound, thickening of the mitral. to resist the enórmous hypertrophy. Evidence of recent inflammation existed outside on the pericardiac serous covering of both auricles, in some places flacculi of lymph were seen. An old and firm adhesion of the pericardium to the heart is seen also near the apex of the organ. The lungs look outside to be spotted like melanosis, from the immense number of small apoplectic extravasations, in the tissue of the organ, having in fact the appearance of the arum maculatum. Both lungs are gorged with blood whilst the bronchi, in their whole extent, participate in the inflammatory congestion. All this looks to be quite recent. The heart's being an old mischief. See Case 1006.

869. *Vegetations upon the aortic and mitral valve, a new valve formed ;* dilatation and hypertrophy of the ventricle below (left), rest of the heart healthy.

819. *Extraordinary product of pericarditis, the pericardium as thick and as rigid as sole leather ;* from an European, vide page 95, Path. Indica, CASE 819.

859. *Abscess from liver bursting in the pericardium, presented by Professor Jackson.* See case, DIVISION LIVER, &c.

1045. *Ossification of the heart, adhesions of pericardium ; presented by Dr. J. Mouat, Inspector General, Madras.*

1047. *Universal adhesion of pericardium to the heart, forwarded from Madras by Dr. J. Mouat, Inspector General*, p. 29.

1003. *False membranes, tying the two edges of the tricuspid valve together, and prolonged into the pulmonary artery.*

749. *Inflamed aorta descendens of a native of Bengal.*

871. *An aneurism projected into the heart itself, arising close to the valves of the aorta, which are continuous with the floor of the aneurism The sac when distended would nearly hold a closed hand, and projects into the auricular septum, opening behind, by a smooth round*

Nos. *lip into the left auricle, just above the fossa ovalis*, so that the blood must pass twice through the left ventricle, which is much dilated and thickened. The sac is so puckered and contracted that probably little blood passed through it. See Case 871.

121. *Aneurism of the aorta at its arch, the sac projects just below the arteria innomminata.* It has strengthened itself by adhesion to the pericardium, but at the lower part is ruptured, and the blood has filled the pericardium, compressing the heart from without.

255. *Aneurism of the aorta bursting into the bag of the pericardium.* This tunic has been slit open in two places, by which its intimate adhesion to the surface of the heart by well organized membrane, is made apparent. The morbid dilatation is at the right and most depending part of the aorta, and involves the right coronary artery which is the point that has given way, and allowed of the slow infiltration of the blood into the sac of the pericardium, and from this the organized membrane above alluded to has no doubt been formed. The right aspect of the aorta has been laid open and shows a completely altered state of the calibre and dimensions of the vessel [Evans.] Shews also the round lip of a saccular opening —and the interior of the aorta studded with osseous spots.

789. *An inflamed heart, stuffed with organized côagula.*

741. *Injected axillary vessels.*

123. *Heart, and arteries arising from the heart, fully injected, and the veins also.*

788. *Abnormal distribution of the main arteries usually given off from the Aorta. Presented by Tumeez Khan, Medical Student, with the following description.*

This preparation has been taken from a native brought in during the session 1843-44, for dissection. There is no arteria brachiocephalica. From the anterior part of the arch of the aorta three arterial trunks are seen to originate. The 1st is the right common carotid, the 2d or central one is the same artery of the left side; both of which arteries ascend up on either side of the trachea and assume their natural courses. A little posterior and external to the last named artery, the subclavian artery of the left side arises, which ascends up a little and is about an inch and half in length, and divides into two branches of equal diameter, viz. the vertebral and the proper subclavia sinistra. From the most posterior aspect of the aortic arch, and on a level with the bifurcation of the trachea, the subclavian artery of the right side, is seen originating, which then passes behind the trachea and œsophagus resting on the bodies of 1st and 2nd dorsal vertebræ; then it ascends up a little and gives off the vertebral artery, and then, like the vessel of the other side, resumes its natural course.

884. "*Extensive scirrhous formation of the heart.* Patient a native of Madras, admitted with Jaundice." Forwarded from Dr. Oxley, Singapore.

641. *Extraordinary atrophy of the heart from compression, (no bigger than an orange.) See division,* AIR PASSAGES AND LUNGS.

HEART.

Illustrations from Comparative Anatomy.

Nos.

563. Is a fine *example of a single heart*, having two cavities only;—an auricle and a ventricle—and furnished with a double set of aortic valves, one beneath the other, of triangular form. It illustrates especially, No. 750, where "I have separated the right heart from the left by an incision through the septum"—*shewing the human heart to be double.* This specimen (563,) is the heart of a shark—Genus charcharias. See Fyfe's Comp. Anat. p. 287. Cuvier, Leçons d' Anat. Comp. Tom. iv. p. 227.

702. *The heart of a species of Ray Fish.*

709. *Is another specimen of a single heart*, from the crocodile (crocodilus biporcatus.) This is more complicated than the last, but well explained and described by Cuvier. Leçons d'Anat. Comp. tom. iv. p. 221, 222. Fife p. 244.

CASES.

OSSIFICATION OF THE HEART, ETC. No. 1015.

(*By Francis Innis, Esq. Assistant Surgeon, H. M.* 84*th Regiment.*)

Private John Courteney of H. M. 84th Regiment, had been subject to epilepsy for three years, and to purpura hæmorhagica and scurvy for nearly the same time, (since his arrival in India.) Was attacked with general dropsy on the 4th September, and died suddenly on the 2d October 1845.

Dissection five hours after death.

Head.—Brain, particularly the white substance, much softened, 1½lbs of bloody serum on the surface of the brain and spinal canal. *Chest*—One pint of serum in thoracic cavity, congestion in lower, and œdema in upper parts of both lungs. Left lung much adherent.

Heart—Pericardium strongly adherent to the surface of the heart. Cavities slightly dilated, auricles thin, a mass of ossific matter of the size of an eight-anna piece (shilling) on the surface of the left ventricle, near the orifice of the aorta, covered firmly by the pericardium, valves sound. Three quarts of serum in cavity of abdomen, no important lesion of other viscera.

UNIVERSAL ADHESION OF PERICARDIUM TO THE HEART. No. 1047.

(*Abstract of the Case of Private George Nixon, by Francis Innis, Esq. Assistant Surgeon, in charge H. M.* 84*th Regiment.*)

While in Hospital under treatment for chronic ophthalmia, was suddenly seized with cholera at 2 o'clock A. M., on 2d January 1846, collapse immediately followed, and he died at 8 o'clock P. M.

Sectio Cadaveris ten hours after death.

External appearance muscular and firm. *Head*—meningeal vessels somewhat distended with dark blood. Brain remarkably firm, three drachms of yellow serum at base of brain. *Thorax*, *Lungs* perfectly normal, right weighed 19 ounces, left 1[illegible] ounces. *Heart*, *Pericardium* universally and firmly adherent. A large white fibrinous coagulum in the left auricle, dark-coloured coagula in the large vessels. Heart weighed 16½ ounces. Cavities much enlarged, but empty. Walls soft and flabby, great thickening and numerous vegetations around the left auriculo-ventricular opening, other valves healthy. *Abdomen*, *Liver* weighed 3 pounds 4 ounces. *Gall-bladder* full, *Kidney* healthy. *Intestines*, numerous patches of vascularity on the mucous membrane. Valves normal, a large quantity of congee-like fluid in the whole course of the intestinal canal, which on being removed, left no trace on the mucous membrane, which in the large intestines was quite blanched. Other viscera healthy, bladder empty.

CARDITIS—ENDO-PERICARDITIS AND POLYPI, PLEURO-PNEUMONIA. No. 868.

(*By Tameez Khan, Student Med. College, from Clinical Report.*)

February 2, 1845. 9 A. M. Admitted just now into the Medical College Hospital Aruth Ram, ætat 34, a robust Oorea bearer, (Hindoo by caste) labouring under the following train of symptoms of about five days' duration.

Acute pain, aggravated on pressure and breathing, situated in the chest (both on the right and left sides and at the lower parts). Great difficulty of breathing, respiration short, hurried, and laborious, the least effort to breathe increases the pain; features expressive of great distress and anxiety. Patient complains of slight cough, attended with expectoration of mucus, and frothy matter. The air passages seem as if they were full of mucus and there is want of power to cough up all, and the peculiar rattling sound of mucus is distinctly audible even from a distance.

2nd.
V. S. ad ℥xvj.
℞ P. Jalap Co. ʒi.
Hydr. Subm gr. ij.
Aq. Menth. Pip. ℥j.
M. ft. Haust. St. S.
℞ Ant. Pot. Tart gr ij.
Magn. Sulph. ℥i.
Aq. Dist. ℥viij. M.
An ounce to be given every third hour; after free purgation.

The patient is unable to lie except upon his back in the horizontal posture. There is great heat over the chest, and the temperature of the skin of other parts is rather elevated. Pulse full, sharp, and quick, 115 beats in a minute. Tongue red and glazed. bowels torpid, and not moved for five days; there is complete want of appetite, urgent thirst, urine voided scantily, and high-colored. Cannot sleep at all during the night. About four days ago, it seems from his own statement, that he had an attack of fever, which came on itself, and the febrile state was followed by pain in the chest and difficulty of breathing. Prior to the appearance of febrile symptoms the patient was enjoying tolerably good health. No cause can he assign for this insidious attack.

3 P. M. Patient states that he has been much benefitted by being bled; the blood drawn from the arm was buffed. The difficulty and shallowness of the breathing continue, pulse quick, but reduced in *fulness*; features anxious and distressed.

Bowels moved thrice from the dose of jalap that he had; states that he feels a sensation of suffocation, an obstruction in the chest. The chest seems as if bulging out to the lower part of the left side.

3rd, 8 P. M. Expired last night at 1 P. M.

Sectio Cadaveris (*ten hours after death.*)

(Present, Professor Jackson and students.)

On opening the *chest*, there was found effusion of coagulable lymph on the surface of the lungs, in some places it was deposited in thick layers similar to adipose tissue, and partaking of a purulent, greenish yellow color. By means of fibrinous bands the lower part of the right, as well as of the left lungs, were adherent to the diaphragm. The pleuræ, lining the whole chest and outer surface of the lungs, were highly inflamed, and in fact there was general inflammation of the serous investing membranes of the thorax. The lungs were not agglutinated to the cavity of the chest on their sides and posteriorly, but thick strata of coagulated lymph were found intervening, without any adhesion. There was also serous effusion in the right as well as in the left cavities of the chest. The substance of the lower part of the left lung was carnified (hepatised,) and congested. The other parts of the lungs (except in one point to be noticed hereafter,) even up to their surfaces, were in a highly inflamed and congested state. In the centre of the upper lobe of the left lung a small circumscribed abscess was found, about the size of a shilling. The trachea and bronchi were of a vivid red color, and highly inflamed, enormous quantity of muco-frothy matter was found in the tubes.

The pericardium is thickened and covered with lymph ; its serous surface contained some effused serous fluid. The inner surface of pericardium and the outer surface of the heart—presented a villous and "honeycomb" appearance in some places, especially that near the origin of the pulmonary artery ; this false membrane was rough, reticulated, harsh and rugged to the touch. The substance of the heart was injected and inflamed, the organ itself preternaturally enlarged and its parietes hypertrophied. The wall of the left ventricle is one inch thick. The heart was however loose, and floating in the pericardium, but this last united by adhesion to the lungs.

The walls of the right auricle thickened, and its cavity filled with a coagulum, which is lined by a serous membrane, and in some parts has contracted adhesion with the thickened parietes. (It is here seen to be continuous with the endocardium, and the inflammation was continued from the one to the other as shewn by the clot being covered with the honeycomb exudation ;) the membrane liniug the auricle is intensely red. The auriculo-ventricnlar opening is partly obliterated by the coagulum, but a passage is left capable of admitting the tip of the little finger ; the coagulum is also agglutinated in some parts to the apices of the tricuspid valve In the right ventricle a portion of that coagulum is seen prolonged and entangled in the meshes of the chordæ tendiniæ. The walls of the right ventricle are also thickened, and the cavity diminished in size.

The pulmonary artery somewhat dilated, the sigmoid valves appear large, in the left auricle a small coagulum is observed, of a reddish color, but loosely adherent. The internal surface of the auricle is of a deep red color. The coagulum is united to the mitral valve, and the valve itself thickened and of an opaque glistening look. The cavity of the ventricle not diminished in size, but its parietes hypertrophied.

Abdomen.—The liver was highly congested and engorged.

DESTRUCTION OF THE TRICUSPID VALVE, PARTIALLY REPAIRED, DILATATION AND HYPERTROPHY OF THE RIGHT CAVITIES—ORGANIZED FIBRINE—*See also No. 869.*

Gunner Alexander Findell, agéd 28, 3d company, 3rd battalion, Artillery, admitted 18th June 1843, about noon, under the following circumstances.

℞ Pil. Hydr. gr. viii.
Opii. gr. i. M. to be given immediately.

℞ Acid Sulph. Dil. ʒi.
Spt. Œther. Nit ʒiii.
Aquæ ℔ij.
Sacch. Purif. ℥ss. M. for drink.
Remove ℥vi. of blood by cupping from the præcordia, and afterwards apply a large blister.

States that he has been suffering from severe diarrhœa for the last three months, during which period he has continued to do his duty, having been on guard only yesterday, when he became so weak that he could not stand, and was forced to go to the barracks. He is dreadfully emaciated, and so debilitated that he had to be supported out of the doolie and carried to his cot. He complains of pain, and a sense of oppression at the prœcordia, also pain in the right hypochondrium; cough and difficulty in breathing. The impulse of the heart is very much increased, and raises the thorax perceptibly, the sounds of the heart are irregular, and confused, so as to be analysed with difficulty; the, bruit de rape, is distinctly heard at the lower part of the sternum, pulse weak, and irregular, respiration anxious and hurried. Œdema has taken place in the face and feet, the face and particularly the lips, are of a pale violet tint, the gums are white, blanched and ulcerated, and a mercurial odour is very apparent when his bed is approached. He most solemnly protests that he has taken no medicine in barracks except a bitter infusion. He is weak, exhausted, and oppressed, and reduced to a perfect skeleton. When asked his reason for not coming into Hospital, he said, "why, Sir, to tell you God's truth, I have served thirteen years, and I thought if I came into hospital that I would be discharged or done something with before I had served my time." His bowels have been about twelve times moved in the night, and six times in the forenoon before admission.

Vesper.

℞ Am. Carb gr. viii.
Spt. Amm. Arom. ʒss.
Mist. Camph. ℥i. M. now, to be repeated every hour or half hour.

No improvement in any of the symptoms, excepting that the purging has been checked; the cough, difficulty in breathing and the irregular action of circulation continue. He appears to be even weaker.

9 P. M.
℞ Opii. gr. ij.
Ext. Hyosc. gr. iij. M. to be given now.

Complains of griping pain in the abdomen, bowels twice moved, stools brown and very offensive, no change in the general appearance, in the action of the heart, or pulse.

10 P. M.

Appears to have been relieved by the remedies, as he is now in a placid slumber; pulse small, quick and irregular. Heart's impulse still considerable.

12 P. M.

Continued much in the same state until this hour when he expired suddenly.

Examination (six hours after death.)

External Appearance.—The body much emaciated : the face, and lower extremities were in a state of œdema, the dependent parts of the body of a dark purple color.

Head.—Effusion to some extent existed in the lateral ventricles, and at the base of the brain, the substance of the cerebrum was soft, and of a paler color than natural.

Chest.—The thoracic cavity contained about two pints of serum of a straw color, the lower lobe of the right lung was hepatized, and of a dark red purple color. Small bags or sacks, hydatids (?) which when opened were found to contain air and water, existed throughout the anterior, middle and posterior mediastinum, more particularly in the anterior, where the pleura is attached to the sternum. The left lung was compressed and lay in the posterior mediastinum ; its place was in part occupied by an enormously enlarged heart. Upon opening the pericardium about four ounces of water escaped. The heart when exposed appeared as large as a bullock's. The right auricle and ventricle were much dilated and hypertrophied, the walls being twice as thick as in the healthy subject. The tricuspid valve was destroyed in a great measure, and the columnæ carneæ were converted into a cartilaginous substance, and some were covered with a calcareous matter. The last mentioned were exceedingly brittle, indeed many of them were broken. The right ventricle contained a large quantity of fibrine of a light yellow color, and semi-transparent, a ring of this formation surrounded the auriculo-ventricular opening, and in all probability assisted in performing the function of the diseased valve. The left ventricle and auricle were slightly hypertrophied, the mitral valve was sound. The columnæ carneæ were of a pale color, and had more the character of tendinous, than muscular substance. A large patch of a white organized false membrane covered the apex of the heart.

Abdomen.—The abdomen contained about two pints of serum, and small sacs or bags were observed (analogous to those found in the thoracic cavity) in the cellular substance connecting the folds of the peritoneum to their fixed attachments. One of these large sacs was situated over the left iliac vein, where it passes out of the pelvis ; this during life must have had the effect of interrupting the circulation in the left lower extremity. The stomach and small intestines were healthy. The large intestines adhered in numerous situations to the walls of the abdomen, and to the small intestines ; the mucous mambrane was soft and pulpy but no ulcerations were observed.

OBLITERATION OF PERICARDIAC CAVITY, FROM ADHESION. SEE NO. 663, p. 16.

(By A. Wood, Esq. Surgeon, 4th Battalion Artillery.)

Joseph Depper, Gunner, aged 32, 4th Company 4th Battalion Artillery, admitted 28th November 1833.

Fever for several days ; appears to have been drinking, tongue foul, skin hot now, tendency to moisture, took comp. jalap and calomel on admission, a quarter of an hour ago, pulse frequent, soft. This man has been a brutal drunkard for some years, ever since he was reduced, in

	consequence of hard drinking, from being a Quartermaster Serjeant.
29th, noon. Pulv. Jalap Com. ʒi. Haust. Diaphoret. Calomel, extract Cathartic a a gr. v.	Tongue rather foul, skin cool, pulse soft, fever at 11 A. M. skin hot and dry, bowels open. Cool now, pulse frequent and soft, tongue rather foul, has a haggard attenuated appearance, is a very hard drinker, and appears lately to have been so, features sharpened, no pain in right side.
30th. Pulv. Rhei. Co. ʒi. Calomel gr. v. Haust. Diaphoret.	Tongue foul, bowels open, motions brown and watery, liver appears somewhat enlarged, not hard, nor any pain on pressure.
Noon. Haust. Diaphoret. R. Calomel gr. v. Pulv. Antim. gr. iv. et Rept. nocte.	
Dec. 1st. Pulv. Antimo. gr. v. Pulv. Rhei. Co. gr. viii. Pil. Hydr. gr. iv.	Skin cool, pulse soft and frequent, tongue foul at centre, motions fluid, some mucus, five or six motions of different colours and feculent.
2d, noon. Pulv. ut heri.	Skin cool, pulse more moderate, tongue foul, one watery motion, slight heat at 11 A. M.
P. M. Haust. Diaphoret. ri. Calom. Pulv. Dove a. a. gr. viii. Emplast. Lyttæ nuchæ	Heat has continued, no pain, tongue much cleaner. Bowels open, but not freely, has been slightly delirious, and is very much reduced, features much sharpened.
3rd. Ol. Ricini ʒix, Calomel. Pulv. Antim. a a. gr. v.	Has been sensible all night, complains of having lost his memory. Head easy, skin cool, pulse frequent and soft, one glairy viscid feculent motion.
4th. Calomel gr. xx. Camph. gr. iv. in pilul. post horas tres Mist. cum Cheyrettâ.	No heat last twenty-four hours, at times delirious, skin cool, pulse frequent, and soft, slight yellow fur on centre of tongue, clean edges, two bright orange, jelly-like motions, stomach irritable.
Noon. Enema Purgans. Haust. Diaphoret.	Slight heat at 9 A. M. Bowels not open, frequent vomiting.
P. M. Empl. Lyttæ Epigast. Calomel Extract Cathartic a a gr. viij. Ol. Ricin. ℥ i. Pilul. Aloet gr. x.	Has not vomited again, tongue more foul, bowels open, motions not kept (if he has had any), skin rather hot and moist, pulse frequent, no pain. No return of vomiting, skin cool, pulse pretty good, tongue cleaner, has a haggard unfavorable appearance, no motion.
P. M. Pilul. Hyd. gr. iv.	Asleep: cool all day, motions glairy and viscid.
6th. Sago and wine occasionally M.	No return of heat, is very low, features more sharpened, tongue dark-coloured behind, one scanty, viscid motion, no pain. Pulse weak and rapid.
P. M. Ammon. Carbon. gr. v. Stat.	Low this evening, has singultus, tongue black and furred, several bilious orange-coloured motions. Pulse rapid, rather weak, skin comfortable.

7th.
Pilul. Aloet. Pilul. Hydr. a. a. gr. v. Rept. post horas tres.

Not quite so low but very poorly, singultus ceased, no motion of bowels, tongue foul.

A. M.
Enema Stimulans.
Mulled Port, Sinapism to inner side of legs.

Sinking, skin colder than natural, pulse very feeble, much reduced. Died at 4 A. M.

Sectio Cadaveris.

Head.—Extensive effusion of yellow-colored lymph on the surface of the brain, and deep orange-coloured serum in the ventricles, and at the base of the skull, and in the spinal canal.

Chest.—The pericardium adhered closely to the heart. On elevating the sternum, both right and left side of lungs were found closely adhering to the mediastinum, the phrenic nerves, and filaments of the pneumogastric, situated anteriorly to the root of the lungs, were deeply imbedded in adhesive lymph, occasioned by remote inflammation. The ligamentum latum was also much thickened, and throughout the entire of the lungs there seemed to have existed chronic disease. The greater portion of them not allowing free access of air, through the cells, and was more compact than natural on pressure. The external appearance of the pericardium evinced more recent inflammation ; on making a small aperture in it, the entire of its internal serous surface was closely adhering to the heart, also the superior portion as it is reflected over the vena cava, was adherent, and that portion which in a natural state was reflected over the middle of the aorta and pulmonary artery, was attached. In fact the entire of the serous surface was destroyed. The pericardium was closely adhering to the entire of the heart. The fibres of the heart itself were much relaxed in appearance, and out towards the anterior part of the auricle, the passage or openings of the two cavæ were plugged with lymph. The septum auricularum was thicker than natural. The muscular projections commonly called carneæ columnæ were flaccid and of a very pale colour.

CHOLERA—CHRONIC HEPATITIS—CHRONIC ENDO-PERICARDITIS—HEPATIC CICATRICES. SEE No. 558, p. 17.

(*By J. McRae, Esq. Assistant Surgeon, in medical charge 2d and 3d Brigade, Horse Artillery.*)

Christopher Harris Bombardier, aged 39, 2nd troop 3rd brigade Horse Artillery. Admitted 20th May 1843.

May 21st.
Hydrarg. Chlorid. ℈i, cum Tinct. Opii. ʒiss.
Haust. Efferv. cum Tinct. Opii. gtt. 20 ter quarterve in die.

Admitted last night with purging, and vomiting attended with cramps of his extremities; what he vomits is dark and bilious, and his stools are thin, dark and offensive, pulse slow, irregular, soft and intermitting, but it is usually of this nature, surface cool. He has been *long and often in Hospital* on account of hepatic complaints, and symptoms of diseased heart, and there is permanent enlargement of the hepatic region and constant palpitation. He has taken no food for the last two or three days, but has been affected with great thirst, and he has been vomiting frequently during the last few days, but very frequently all day yesterday previous to his admission. He has had several effervescing draughts during the night, with twenty drops of laudanum in each, and he has had a mustard poultice applied to the pit of the stomach, early this morning.

Vesp.
Continue Haust. Effervescens.

Has vomited several times, but he has been only twice or three times at stool, and the cramps have left him. He is still very thirsty, and the fluids of which he drinks in excess, are the cause of his vomiting ; pulse soft, slow and intermitting.

22d.
Pulvis Jalapæ Co. ʒi. Statim.

Feels better, though very weak and exhausted, pulse soft and intermitting, surface cool, vomited two or three times, and he has been two or three times at stool, dejections dark, thin, and offensive. Enlargements (chronic) of the hepatic region.

Vesp.
Hydr Chlorid gr. viij. cum Opio. gr. iij. h.s.s.
Ol. Ricini ℥i. cras mane.

Feels easier and has been nine times at stool, but there has not been much griping or straining, dejections dark and offensive. Has vomited two or three times during the forenoon, but not since one o'clock, pulse small, weak and intermitting, surface cool, complains of oppression at the pit of the stomach, and he is unable to lie down in bed, and generally sleeps with his head and shoulders well raised. There is fulness and tenderness in the hepatic region, and he appears weak, emaciated and exhausted.

23d.
Emplast. Lyttæ scrobiculo cordis.

Little or no sleep during the night, but he has been free from purging and vomiting. Pulse soft, small, irregular and intermitting, surface cool, oppression at the præcordia continues.

Vesp.
P. Opii. gr. iij.
Camph. gr. iv.
Conf. Arom. gr. v. M.
Fiat pilul ij. hora som sumend.

Has taken two doses of castor oil, and his bowels have only been moved once, the stool appears quite natural. Pulse as at last report ; surface cool, and moist, his breathing appears to be oppressed, and he reclines in a half sitting posture, has slept a little in the forenoon.

24th.
Haustus Effervescens cum Tinct. Opii ter in die.
Simple dressing to the blistered surface.

Slept only part of the night, and he appears weak, and pulse intermitting, skin moist with perspiration, cold. Has been vomiting several times, and he says that he has been several times at stool, but there is only one alvine evacuation in the nightstool, and that is of healthy appearance.

Vesp.
C. Opii. gr. iij.
Camphoræ gr. v.
ft. Pil. ij. h. s. s.

Two feculent scanty stools since morning but without tormina or tenesmus, has been vomiting several times and appears very much oppressed in his breathing, and is very restless, pulse soft, small, irregular, and intermitting.

25th.

Has had no sleep during the night, and he appears very restless and oppressed. Pulse scarcely perceptible, and very irregular and intermitting, complains of griping pains in the abdomen, but he has been only two or three times at stool ; surface cool and damp, he vomits occasionally, and will not refrain from drinking large quantities of fluids which increases the vomiting.

Noon.
Vesp.

Breathing became more oppressed and he died suddenly about 11 o'clock.

Post Mortem Examination.

Liver very large and indurated, and when sliced, presented a marbled appearance of bright yellow and dark brown. Cicatrices of old abscesses on its upper and lower surfaces. Heart enlarged and distended with coagulated blood, aortic valves ossified. Left ventricle hypertrophied, left auricle enormously enlarged, but not thickened ; distended with coagula. Right auricle and ventricle enlarged in their dimensions, but not hypertrophied in their walls. Colon thickened in its coats, contracted in its calibre, and purple on its mucous surface, and here and there slightly ulcerated. Stomach enormously distended with fluid, congested on its inner surface, otherwise healthy. Head not examined. Other organs quite healthy.

Remarks.—The diseased and incurable condition of both liver and heart was the cause of death, in this case. The cholera symptoms, though the most prominent of his ailments when last admitted, can scarcely be considered as the specific disease, which carried him off, as they were no doubt caused by his other diseases through which his life had been gradually brought to a close and by a long and protracted state of general ill health.

ACUTE AND CHRONIC ENDO-PERICARDITIS.

(*By J. Denham, Esq. Asst. Surgeon, Left Wing, 1st Brig. H. Artillery.*)

Gunner George Redcross, ætat 26, 3d Company 1st Battalion Artillery.

August 4th.
℞. Calomel gr. v.
Pulv. Jal. Co. ʒi.
℞. Tinct. Digit. gtt. xx.
Spt. Æther, Sulph. ʒi.
Mist. Camph. ℥i. ter in die.

4th August, 1843. Admitted with symptoms of fever, and great palpitation of the heart. Pulse quick, and feeble, dyspnœa great. The 1st and 2d sounds of the heart cannot be distinguished.

Con. Pulv. Scam. Co., now, ʒss. V. S. ad ℥xij.

Difficulty of breathing continues, pulse is quick and wiry, bowels not freely opened.

Vesp.

Improving.

5th, 6th, 7th.
℞. Tinct. Opii. gtt. xx.
Spt. Æther. gtt. xxx.
Spt. Lavand. gtt. xxx. one hour after powder
℞. Pulv. Jalap. Co. ʒi.
Pulv. Scam. Co. gr. x.
Pulv. Gam. gr. 1 S.S.

Heart's action extremely irregular, sounds very slightly distinguished in the carotids, pulse very feeble, and scarcely to be felt. The lungs on percussion have a duller sound than natural. He prefers the left side to lie upon ; bowels not open, neither legs nor feet swell.

Vesp.

Bowels open, dyspnœa great, impulse of heart bounding, pulse feeble, and scarcely perceptible.

℞. Tinct. Opii. gtt. xv.
Spt. Æther Co. ʒij.
T. Cardam. Co. ʒi. ss.
Mist. Camph. ℥iss.
Haust. Omni. qua.
hora sum.

Died about half past 9 P. M.

Post-mortem Examination.

The pericardium contained a considerable quantity of straw-coloured fluid. The heart was greatly enlarged. The right auricle was of an enormous size. The auricular appendix was distended with fibrine, which appeared to be becoming organized. In the right ventricle, tricuspid valve contained cartilaginous deposit. Left auricle contained fibrine, and was not so much enlarged as the right. Left ventricle, mitral valve was ossified, an ossific tumour projected above the valve, which could be crumbled away very easily by the finger. The deposit under the membrane was excessively hard. The lungs were very much congested. As the cause of death was so palpable, the other viscera were not examined.

HYPERTROPHY WITH DILATATION OF LEFT SIDE OF THE HEART—PULMONIC APOPLEXY—PERICARDITIS—PNEUMONIA.

(*By Dr. H. Clark, Surgeon, 3rd Battalion Artillery.*)

A. Fraser, ætat. 24, was admitted on the 19th December 1845, into hospital, for severe palpitation and dyspnœa for which he had been treated before. Leeches to the cardiac region, and small doses of tincture digitalis, and tinct. hyosciami, afforded him some relief, but only temporary. He continued in this way till yesterday, when the most distressing symptoms of his disease returned. He could now no longer remain in an horizontal position, but sat up in bed to relieve the sense of suffocation, which threatened death. The pulse has at all times from his first entry been intermitting ; he is now extremely weak, has frequent fits of faintness, though the temperature of the skin is naturally warm. The surface, particularly the forehead and breast, remain covered with moisture, has had no sleep, he is now left back, as I have every reason to believe, that removal from this would prove fatal.

(Signed) DAVIS LUCAS,
Assistant Surgeon H. M. 61st Regt.

24th. *Vesp.*
℞ Tinct. Hyosc. ʒss.
Digital. ♏. x.
Mist. Camph. ℥i. ft.
Haust. ter in die.
Spiced sago.

In the state described above—appears to have fallen upon his chest a week ago, when he experienced considerable pain in the cardiac region, from which he has not been free since.

25th.
Continue medicine.

Passed a more comfortable night, having had two or three hours refreshing sleep. Pulse feeble, rapid and irregular.

Vesp. ℞ Tinct. Hyosc. ♏. xl. Mist. Camphor ℥iss. "now." App. Sinapism ad præcord.	Great difficulty of breathing, with rapid, obscure, irregular and feeble pulse. Extremities covered with cold sweat, and is in much distress.
26th. Rep. Haust. 3 qua. hor.	Obtained relief from the draughts last night, but in the same state of excitement this morning as formerly. Pulse rapid and small.
Vesp. Spiced sago and broth, occasionally through the day. Sinapism to be again applied.	Pulse increased in quickness with a sharp wiry feel. Extremities cold and bathed in perspiration. Is in a highly exhausted state and will probably not long survive.
℞ Spt. Æth. Sulp. ʒss. Tinct. Lavand. C. ʒss. Mist. Camph. ℥i. Rep. Haust. p. r. n.	Unable to retain his food frequently, although taken in very small quantities.
27th. Enema Purgans stat. Rep. Haust. ut heri Fotus commun. et Rep. Sinapism.	A much better night, and pulse this morning soft and fuller, although accelerated and throbbing. Great irritability of skin about the præcordium with a sense of fulness in left hypochondriac region.
Vesp.	Pulse rapid and irregular, soft and full. Hiccough came on at five. Exhaustion great.
28th Rep. Haust. p. r. n. and a little warm spiced Wine from time to time.	A bad night, voice inaudible at present, difficulty of breathing extreme. Hickup very distressing. Pulse greatly oppressed and every indication of approaching dissolution.
Vesp.	Is now in articulo mortis ; at midnight expired.

Autopsy.

There is besides hypertrophy, great dilatation of the left ventricle whilst the auricle from dilatation would contain a closed hand. The left ventricle was full of black coagulated blood. Besides the auricle, the vessels emptying therein, were gorged with blood. There were numerous apoplectic effusions in the lung; some as large as a walnut, many as large as a pea or bean. The whole pulmonary structure of both lungs being filled with the red glutinous product of recent inflammation. The mucous lining also of both bronchial bifurcations, swollen, and red, and filled with bloody sputa. Heart altogether very large. The right side healthy, all its valves sound, thickening of the mitral, to resist the enormous hypertrophy. Evidence of recent inflammation existed outside on the pericardiac serous covering of both auricles, in some places flocculi of lymph were seen. An old and firm adhesion of the pericardium to the heart is seen also near the apex of the organ. The lungs look outside to be spotted like melanosis, from the immense number of small apoplectic extravasations in the tissue of the organ, having in fact, the appearance of the arum maculatum. Both lungs are gorged with blood, whilst the bronchi, in their whole extent, participate in the inflammatory congestion. All this looks to be quite recent. The heart's being an old mischief.

Remarks.—Was born in India, and resided in the Madras Presidency for many years. Has acted as writer in the regiment for some time ; and a short time previous to admission into the Artillery Hospital, was appointed Regimental School Serjeant. *He had laboured under disease of the heart for many years, and had palpitation and faintness* :—but never, according to his own account, very severely, until recently. The fall which he had experienced out of Hospital, a short time previous to admission on the 19th December, may account for the appearance of recent inflammation to so great an extent indicated in the Post-mortem Examination.

The obvious symptoms of hypertrophy, and advanced stage of disease, precluded all hope of recovery, from the moment of admission into the Artillery Hospital, whither he was sent from inability to proceed with his Regiment.

EXTRAORDINARY SMALLNESS OF THE HEART—KURNAUL FEVER.

(*By Thos. G. Elliot, Esq. Surgeon, 2d Brigade Artillery.*)

June 11th. Pulv. Ipecac. ʒi. S. S. Calomel gr. v. Pulv. Antim. gr. v. Vesper. Pulv. Jalap. Co. ʒi. Mane. primo. S.	John Brown, 2nd gunner, 4th Company, 2nd brigade Artillery ; admitted 11th June 1843, aged 25 years, Has had occasional chills, with heat of skin, sickness of stomach, vomitting of green fluid, headache and general indisposition for four days ; skin warm but moist at present, pulse frequent and soft. Tongue much furred, has headache, and urine is high-coloured,
Vesp. Capt. Camph. gr. v. c̄. pill.	Has vomited freely and been purged four or five times, stools green, he looks jaded, and complains of pain in the back, but bears pressure over abdomen well; pulse small and soft, and tongue furred, skin warm and soft, thirst great.
12th. Subm. Hyd. gr. v. S. S. Capiat Mist. Diaphor. 3 tia qu aqua hora.	Has had a severe febrile paroxysm, which came on about 3 P. M. with chills and some headache, he is now (7 P. M.) hot and thirsty. Tongue hard and dry, some nausea, skin harsh, countenance anxious, and dark about eyes, voice small, position prostrate, three stools to-day.
13th. Hirudines x. to be applied to temples and vi. to Epigast. should fever return. Subm. Hydr. gr. v. Pulv. Ant. gr. v. S. S Ol. Ricini ʒss. post hor. duas.	Passed a very indifferent night, not having slept at all, though he occasionally dozed ; sweated much all night and the body is still cold and clammy, complains of slight pain in the forehead, but of none elsewhere ; pulse rather frequent and soft, tongue brown and tending to be hard and dry, bowels open ; thirst great.
Noon. Sulp Quinine gr. x. Acid. Sulph. Aromat. gtt. xxx. Aqu. ℥x. take ʒss. every hour with Camph. gr. v. in each alternate dose.	Has had one stool, and has slept about an hour, is still cool and perspiring about the forehead and upper extremities. Tongue hard, brown and dry, countenance anxious, voice small. Pulse better and regular, scarcely more frequent than natural, and soft.
Vesp. Mist. Salinæ et post Citri. Suc.	Says he feels much the same, but he is evidently more alive to questions put to him, the eye is more full, tongue however is still dry, hard and brown ; took some sago.

10 P. M.

Tongue is still dry and dark-coloured, but body warm though moist, pulse about 90, soft, thirst great, no other stool.

14th.
Ol. Ricini ℥ss. Stat. Sum.

Says he is better, the skin is dry and of natural warmth, no headache, and the pulse except being about ninety, nearly natural, still he looks ill, the tongue continues hard and dry, he has great thirst, and the skin of head is rather yellow, three times at the stool but nothing passed.

2 P. M.
Carbon Sodæ ℈i.
Acid. Tart. gr. xv.
Aquæ. ℥ij. M. Haust.
Efferv. 3 quaq. hor. Sum.

Has had three fluid yellow stools, the voice is still small, and the tongue and lips dry, hard, and rough; but there is a general feeling of warmth on the surface, which is now dry, and the pulse is firmer. Thirst great, no pain of the head whilst shaking it, nor of abdomen under pressure.

Vesp. Pil. Hydr. gr. v. Om. hor. Hirud. iv. (temples.)

Is now perspiring, pulse full and soft. Tongue still dry, and he is at times restless, has taken no food for some days except a few spoonfuls of sago, says he has slight pain in the forehead—thirst great.

11 P. M.
Rep. Pilulæ 2nd q. q hor. c. Mist. Camph.

Skin warm and moist, pulse soft but weak, about ninety. Tongue is dry, voice whispering, no headache but scalp warm, two stools watery and pale-coloured.

15th.
Pil. Hydr. gr. v.
Calomel gr. i. Om. hora Mist. Quinin. Sum.

Slept none, has taken a cup of sago and the pills thrice, the countenance is much shrunk, and the skin universally yellow. Tongue still dark, rough, dry, and feels like his skin, cool; the pulse is soft, fair, regular and not more than 80.

Vesp. Ol. Ricini ℥ss.

Speaks more distinctly, and his eye is more animated, the pulse is also soft and regular, but more languid than it was at 2 P. M. skin soft and no pain. Tongue quite black, dry, and rough, lips also; has had no stool, but has taken a little bread and sago to-day.

11 P. M.
Rept. Pilulæ 2nd q. q. hora.
Appl. Capiti. Aquæ Frigid.

Has had two fluid light-coloured stools, he is quieter, and occasionally dozes. Skin warm, and moist but the pulse is small, and the tongue still dry, hard and black.

16th.

Has passed a quiet night, and with the exception of the brown dry hard tongue, seems much better this morning, two or three fluid bilious stools, urine high-coloured, skin warm but moist, takes sago, tea and toast.

Rept. Pil. Hydr. c. Calomel 2nd q. q. hora.

Con. Pilulæ.
Ol. Ricin. ℥ss.
Primo Sum.

Speaks and looks much better; has passed a quantity of urine to-day, and the tongue for the first time seems tending to moisten, pulse regular but small, less thirst, skin cool, has taken five pills; one scanty stool.

17th.

Passed a tolerable night, tongue still dry and black, but less thickly coated, pulse regular, thirst great, is hungry.

Vesp.

Five bilious offensive stools, was inclined to wander for a short time, and the eyes are rather ferrety. Pulse regular but weak, skin cool, thirst less, no sleep, secretion of urine free, tongue clean at tip, but still brown and dry in centre.

10 P. M. In much the same state, except that his pulse is weaker, and his right ear, upon which he has been lying for some days, sore and excoriated, probably from the contact of a blister, which was applied for a couple of hours, three days ago, to the nape of neck.

18th. Om. Passed a tolerable night, no sleep, but he looks much better this morning, skin and pulse tolerable, but tongue still dry and brown, one stool.

Vesp. Rept. Mist. Qui. ℥i. cu. Vini. Rubri. ℥ss. om. hora. Is much inclined to doze, skin again cool and rather damp, pulse about eighty, soft, and compressible.

10 P. M. Enem. purg. St. injt. Capt. Ol. Ricini ʒiij. S. S. Cont. alia. Stupor more confirmed, and abdominal respiration only observed. Pulse frequent and small, skin warm and moist, takes his medicines without much difficulty, but does not speak when it is being given to him; no stool since last night.

From this time he gradually sank until 2 A. M. when he died.

Sectio Cadaveris, four hours after death.

Skin jaundiced throughout, dependent parts dark and mottled, integuments over shoulders, elbows, nates, and other parts, upon which pressure had been made during life, are much ecchymosed. On making the necessary incisions the jaundiced tinge of the skin is found to extend to the subcutaneous cellular membrane, and to that between the muscles, but it did not affect the serous membranes.

Head.—While removing the calvarium a considerable quantity of black grumous blood escaped from the veins of the scalp and sinuses. The dura mater presented no unusual appearance, but there was slight blandiness to a limited extent beneath the arachnoid. There was also slight turgescence of the vessels of the pia mater. At the base of the skull, there was considerable insular congestion, as well as serous effusion.

Chest.—Lungs perfectly healthy in every respect. *The heart was very small, not being larger than an ordinary sized jargonel pear.*[*]

Abdomen.—The omentum, intestines and mesentery free from all appearance of increased vascular action. The intestines were of their natural colour. Liver and spleen both much enlarged, owing to recent congestion. The structure of these organs however was the same throughout in each. The hepatic vessels and biliary duct were full of their respective secretions, which they gave out freely on being cut. Gall-bladder full of bile. The blood which escaped from the vessels necessarily cut during the dissection whether in the head, chest, or abdomen, was perfectly oily fluid and black.

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[*] *See No.* 641, *p.* 28.

ANEURISM IN THE HEART, AND PNEUMONIA. NO. 871, P. 27.

(By J. Jackson, Esq. M. B.)

31st Dec.
Vin. Colchici ʒij.
Liq. Ant. Tart. ʒij.
Sulph. Magnes. ʒi.
Aqua. Menth. Sativæ ℥viii: ℥j. ter in die.
℞ Ext. Hyos. gr. iij.
Pil. Hydr. gr. iv.
Pulv. Digitalis gr. i.
ft. Pil. c̄. Mistura s.
Hirudines xii. left side.

A. Munro, seaman, age 32. Lately arrived from England, by the ship *Queen* after a very short passage. About a month ago was taken with dizziness, pain in the head and chest, followed by palpitation which subsided after treatment. Continued free until the other day, when he was taken with pain in the chest, frequent cough with expectoration, small in quantity, with inability to lie on either side, unable to draw deep inspiration without pain in the right hypochondrium. Was bled a month ago, and again three days ago; no pain in the right side on pressure; tongue clean and bowels regular; pulse is 96, soft, with a little jerk. Has a slight irritating cough. Impulse of the heart, heard over the whole chest; bellows sound very audible, with tremulous sound, as if fluid were in the pericardium.

Jan. 1st 1845.
P. Jalap. Co. ʒj.
Rept. Pil. et Mistura.

Feels easier this morning; lying on the left side; slept better than he had done for some time: one stool.

2nd.
Hirudines xii.
℞ Pulv. Jalap. Co. ʒj.
Rept. Pil. et Mistura.
Vesp. Hyd. Sub. Ext. Col. ā gr. vi. H. S.

Frequent irritating cough preventing sleep; pulse is steady; some oppression about the left side, pain shooting through the back.

3rd.
Rept. Pil. Hydr et Digitalis ter in die.
Rept. Mist. Colchici.
Hirudines xii.

Relieved by the leeches—Pulse is still jerking, but steady, and near 100. Bowels open four times during the night.

4th.
Rept. Pil. et Mistura.

Mouth slightly touched; had four or five stools yesterday; slight cough; pulse steady, the *bruit* in the heart, the same: pain in the chest gone. Small jerking compressible pulse.

7th.
Liq. Opii. Sed. ℈ij.
Æther ʒij. Liq. Ammon. Acet. ℥ij.
Mist. Camph. ℥vi. ft. ℥j. P. r. n.
Pulv. Jalap. co. ʒj.

Suffering a good deal from cough during the night; the same character of pulse. Bowels confined; cough troublesome.

8th.
Empl. Lyttæ chest.
Rept. Mist. Liq Opii. Sedativa.

Complains still of irritable cough, with slight expectoration; pulse 100, soft, at times irregular with *every* 10 *or* 12 *beats, an intermission;* bowels confined; has lost the pain he before complained of. Appetite is bad; obliged also to sit up in bed.

9th.
Rept. Mistura.

Better night; pulse about 90, still a good deal of jerk; has cough still when he lies down; relieved by the blister.

10th. ℞ Mist. Ant. Tart. *ter in die.* Pulv. Jalap. Co. ʒj. Pulv. Scill. gr. ij.	Short frequent cough during the night; action of heart general on the front part of chest; the legs congested, and soft as if filled with fluid; pulse the same.
11th. gept. Mist. Ant. Tart.	Lying flat this morning, but has had a good deal of cough during the night. Wheezing sound over the thorax; bowels moved 4 or 5 times yesterday.
12th. V. S. Ad. ℥xvi. Mist. Ant. Tart. Pulv. Jalap. Co. ʒj. Pulv. Scillæ gr. ij. St.	Suffering during the night from a good deal of oppression in the chest; unable to lie down, the left leg apparently much congested; the *rale* of the heart very distinct: and pulse sharp, 90. Bowels not much moved yesterday.
Vesp. V. S. Ad. ℥xvj. Mist. Ant. Tart. quaqua hora. Calomel, et Col. ā gr vj. Ant. Tart. gr. ¼ H. S.	The pulse rose after V. S.; blood in the afternoon found to be buffed, and cupped; says he found great relief from the bleeding; has less irritation of the cough.
13th. Pulv Jalap. Co. ʒj. R. Pil. Hydr. gr. iv. Pulv. Scillæ gr. ij. Pulv. Digitalis gr. i. Hydr. Submur. gr. iij. at 11, 2, and 6.	Blood taken last evening cupped, but is much less bufled on the surface: has also a good deal of serum in which the *crassa* is floating. Has less pain in the back and does not now complain of pain in the right hypochondriac region, which he did on admission; tongue pretty clean and pale; bowels free; pulse still keeps sharp, near 100. Was faint after the bleeding; suffered less from the cough during the night, but is unable to lie down with comfort.
14th. Cupping Glass to the back. Rept. Pil.	Bowels freely moved, passed a better night than he has passed since admission to hospital; able to lie down better; cough attended with some expectoration; the grating sound of the heart not so distinct; but still continues. The right side of the lung very little audible anteriorly; posteriorly more distinct, some pain under left scapula.
18th. Cupping to right side. Pulv. Jalap. Co. ʒj. Sp. Æther. Nit. ʒss. now Rept. Pil. at 11 and 2.	Respiration now free in the left side; not so distinct in the right, where the heart's bruit drowns it: has slight cough. The pulse is now steady; tongue pretty clean; complains of pain in the right side.
Vesp. P. Ipecac. Co. gr. xv. H. S.	A good deal of blood drawn by cupping, but did not experience any relief; has had several stools, and is now at stool.
20th. Acid. Hydro. M. vi. Liq. Opii. Sed. M. xx. Mist Camph. ℥vi. ʒj. p. r. n.	Cough becomes easy about 4 o'clock; early part of the night, was distressed; pulse to-day is steady. Able to lie in the recumbent position. Bowels confined.
21st. Rept. Mist. Ammoniaci	Action of the heart, still very powerful; the bruit heard over the chest, but it is quite regular; pulse 96, soft; cough more easy with expectoration.

22nd.
Pulv. Jalap. Co. ℈ij.
Rept. Medicine.

Pulse soft, about 100; skin moist and cool; slept well last night: has very little cough; able to lie down; mouth sore; no stool yesterday.

23rd.
Haust. Sennæ ℥ij. now
Rept. Mist.

Very little cough; no stool yesterday, from the repeated doses of jalap: the tongue clean and mouth sore; able to lie flat on the left side or right. The same jerking character of pulse.

27th.
Rept. Mist. Ammoniaci

Cough this morning somewhat increased, but is loose; pulse about 84, irregular, and intermitting at the second beat: action of the heart over the thorax very audible, drowning the respiratory murmur, which is scarcely perceptible, and percussion dull, in the infra-clavicular space.

13th. February
Pulv. Jalap. Co. ℈iv.
Rept. Mist. Ant. Tart.

Cough still irritating but less so; the leeches drew well, and the pulse has come down.

14th.
Vin. Colch. M. xxv.
Aqua. ℥ij.

Five stools yesterday; more oppression about the chest, pulse more quick; cough soft.

15th.
Acet. Pot. ʒiij.
Tinct. Digital. ʒj.
Liq. Ant. Tart.

Some pain in the epigastrium last evening; this morning is puffy about the face, with dry skin; somewhat jerking pulse.

Vesp.
Sp. Æther. Nit. ā ʒij.
Aqua. Pura. ℥x. M.
ʒij. ter in die.

Breathing more hard, and in a good deal of distress to-night. Countenance pallid, action of heart more steady, and the pulse quiet. The respiratory murmur heard through left chest and not drowned by the sound of the heart as before; percussion anteriorly clear on left side.

16th.

Died at 9½ P. M.

Autopsy.

The right lung adherent in the right side throughout and congested, generally, adherent to the pericardium, and below to the diaphragm. The left lung free. Both lungs congested, especially the right, which was softened, breaking down under pressure. The heart enormously large and distended. Left ventricle thickened, great dilatation of the aorta, forming an aneurismal sac about 2¾ inches in diameter, thickened and diseased in structure. The right auricle had deposition on the surface, marks of pericarditis on the opposite membrane, (left auricle had an aneurismal tumour projecting into it and a round opening communicated from the auricle into the sac of the aorta—so that blood sent to the aorta would regurgitate into the left ventricle.) A small quantity of fluid, in the pericardium, about a pint and a half of fluid in the left thorax—other viscera pretty healthy, liver large and hard.

PERICARDITIS—CARDITIS—ATTENUATION AND SOFTENING OF THE HEART—CARDIAC COAGULA—PULMONIC SUPPURATION.

(*By Assist. Surgeon G. G. Brown, M. D.*)

Gunner Samuel Loader, aged 29 years, 2nd Troop 3d Batt. H. Artillery. The patient was a thin narrow-chested man, fair hair and hectic complexion; was admitted into Hospital on the 28th September 1833. Complained of pain in the thorax, difficulty of breathing especially after making an exertion, on attempting to make a deep inspiration a whizzing sound was emitted. Skin was above the natural heat; tongue was slightly furred; bowels regular; pulse frequent, and small. He stated that he had for some weeks past suffered under these symptoms, but it was only during the two days previous to his admission that they had arrived at their present state. He was bled in the arm to ℥xxiv on his being received into hospital, and a dose of opening medicine, which acted freely, was administered; but as the pectoral symptoms were not relieved at the next visit, leeches and a blister were ordered to be applied to the chest, followed by a dose of calomel and opium at night. The following day although the symptoms were in some degree relieved, it was again found necessary to have recourse to the lancet, to repeat the purgative, and give occasional doses of calomel combined with a small quantity of opium. The more urgent symptoms apparently yielded to these remedies, but as occasional difficulty of breathing remained, attended with a whizzing sound, a furred tongue, pulse generally between eighty-five, and ninety, with dry hard cough, leeches were applied to the thorax, the discharge from the blister continued: calomel, antimony, and opium were given at bed time, the only diet allowed was milk and bread twice a day. On the 8th October, he had a return of pain in the thorax, the respiration became more laborious, and the pulse rose to ninety-eight. V. S. relieved these symptoms, and the blister being healed, the ungt. antim. tart. ʒj. was rubbed into the chest. As his mouth became affected, the calomel, antimony and opium were discontinued at night, and the tinct. digitalis with antimonial wine exhibited four times a day. From the 9th to the 15th he appeared to gain ground, his pulse and skin were natural, bowels regular and the uneasy sensation about the thorax had nearly disappeared, but on the 15th, for the first time he complained of palpitation of the heart during the night. Leeches were ordered to the thorax, and the digitalis and antimonial wine were continued, and from that period to the 19th October he appears to have suffered no uneasy sensations of any sort although the digitalis and antimonial wine, occasional purgatives and low diet were continued. On the 19th he had return of palpitation with considerable pain in the right side of the thorax: the pulse was ninety-eight and full. V. S. was again repeated and a blister applied to the chest, but as he complained of giddiness and nausea, the digitalis was intermitted and calomel and opium were again prescribed. The disease was now evidently gaining ground. The pulse had become more full and was generally above a hundred. There was little pain on respiration, but the palpitation was more frequent in its returns, and attended by a flapping sound on the ear being applied over the region of the heart. The countenance became occasionally flushed, at other times pale, and livid. His rest was broken and frequently interrupted by fearful dreams, but the digestive organs discharged their office, and his bowels continued open, and the alvine dejections natural. V. S. was again ordered on the 20th, and leeches were repeated on the 21st, 22d and 23d. The ungt. tart. antim. and the digitalis pulv. combined with pulv. scillæ and ext. hyoscyami were ordered night and morning and in the course of the day. I shall from this date copy from the journal which the protracted nature of the case has induced me to condense as far as possible.

October 24. Rep. V. S. ad ℥xiv. stat. Appl. Empl. Lyttæ p. d Cont. Pilul. ut Antea.	Continues to complain of pain in the lower part of thorax on making a full respiration ; pulse ninety-two, hardness rather increased, bowels moved during the night.
P. M. Rep. Pilul. H. S. S. Appl. Hirudi viij. p. d.	Pain is now diminished, still slight on making a deep inspiration, but ordinarily quite unembarrassed. Pulse ninety, still rather full, skin rather dry.
25th. Ol. Ricini ℥i stat. ℞ T. Digitalis Vini Antimon a a gtt. xx. Aqua q. s. ter in die sumend.	Respiration unembarrassed and unattended with pain. Bowels not moved, pulse 100 ; says he has occasional chilly sweats ; action of the heart regular, some palpitation about an hour ago.
P. M.	Bowels freely moved by the oil.
26th. Cont. Digitalis Vini Antim. et Aqua ter in die. Ol. Ricini ʒvj. Statim.	Slept tolerably well, bowels not yet moved, tongue moist and slightly furred, pulse ninety, smaller than yesterday, can make a deep inspiration without pain, had a return of palpitation during the night, action of the heart strong, on the application of the ear to the chest a flapping sound is audible.
27th. V. S. ad ℥x. stat. Cont. alia Ol. Ricini ℥i. stat.	Passed an uneasy night, complains of severe pain in thorax, pulse 96, small, but bounding and full. Bowels not moved, action of the heart powerful, same flapping sound as yesterday.
P. M. Appl. Hirud. x. p. d. Cont. Haust. T. Digi. gtt. xx. T. Hyosciami ʒi.	Palpitation continues, pulse 96, full and bounding, bowels freely moved.
30th. Rept. V. S. ad ℥x. stat. ℞ T. Digit. ʒij. Antim. Tart. gr. iij. aq. ℔j. ft. Solut. Capt. ℥j. qq hora.	Return of pain of chest accompanied with palpitation, tongue clean and soft, skin cool and moist, pulse 108, full; bowels moved, action of the heart 110.
31st. Cont. alia Med.	Had not much rest during the night, action of the heart much diminished, flapping sound is not emitted so distinctly, pulse 100. small, had little pain in the chest during the night, bowels open, tongue moist.

P. M.
Cont. Remed.

The volume of the pulse considerably diminished, 94; but action of the heart less violent, skin cool.

November 1st.
Cont. Haust.
Ol. Ricini.

Has been restless during the night, sometime ago attempted to vomit, which produced palpitation; action of the heart less violent, only 88, pulse at the wrist smaller 92, bowels not yet moved, tongue clean.

P. M.
Rep. V. S. ad ℥xvj. stat.
Cont. Haust. ut heri.

Action of the heart and pulse increased, this morning several watery stools, skin quite cool.

2nd. Cont. alia.

Slept several hours last night, blood drawn from the arm was not at all buffed; skin cool, bowels open, action of the heart less violent than yesterday.

P. M. Cont. Med.
3rd.
Rept. V. S. ad ℥xx.
℞ T. Digitalis ♏ xxv.
Vini Antimon. ʒi.
Aq. q. s. statim
et Rept.

Was tolerably easy last evening, about 11 o'clock was attacked with pain of both sides of the chest, pulse full, somewhat irregular, action of the heart strong. Bowels have been once moved, skin cool, feels most easy in an upright position.

P. M.
V. S. ad ℥xxiii. Statim
et postea.
℞ T. Digit. ♏ xx.
T. Hyosc. ʒi. c.
Aqua q. ♏. ft. Haust.
Vesicat pect. App.

Is suffering severe pain in the right side of the thorax, action of the heart violent and attended with a flapping sound. Pulse 110, full, face flushed, respiration attended with much difficulty, skin hot, head cold. Bowels have been moved, tongue moist, complains of difficulty of lying on his back.

½ past 9 o'clock.

Felt relieved for a short time after V. S. but started up suddenly about half an hour ago, talking incoherently and appeared to be suffering from difficulty of breathing; fell back on his cot *dead.*

Post Mortem Examination.

A number of strong adhesions existed between the pleura pulmonalis and parietes of the thorax. The lungs were of a deep red colour, more particularly at the root. On cutting into the substance, many small vomicæ appeared, the bronchial cells for the most part plugged up with thin mucus. The pericardium was much distended and contained upwards of a pound of serum. The heart was enlarged, and the parietes thin and flabby; coronary arteries were much indurated, coagulated lymph was found which occupied nearly the whole space of the ventricle. *The wall which separates the ventricle from the auricle was so soft as to break on the slightest touch being applied.* The other parts of the viscus were sound, and the contents of the abdomen exhibited no particular signs of disease with the exception of the spleen which was enlarged and indurated.

INFLAMMATION OF DIAPHRAGM.

(*By W. L. McGregor, Second Lieut. Infantry.*)

William Briggs, 2d Light Cavalry, aged 23 years, admitted 16th August, 1843, with severe remittent bilious fever, and yellow tinge of skin.

17th.
V. S. ad ℔ij.
Rept. Ol. Croton gtt. v.
Ext. Hyos. gr. v. stat.
Enema Tereb.

Headache was very severe, was bled and took the emetic with the croton pills; has still headache, bowels open.

21st.
App. Hirud. xx. part. dolenti. Stat.
Haust. Quin. Co. post tres horas.
Mist. Splen. ℥iss.
Sulph. Quinin. gr. v.

Enema Terebinth. Stat.
Appl. Catapl. brachio.

Has great pain in the region of the spleen, for which he was bled freely last night, and had leeches applied there, and to the head, which appears affected, as he had a fit yesterday, resembling epilepsy. He had the ol. terebinth. in the form of enema, and took purgative medicine; the body is tinged of a deep yellow colour, and the breathing is greatly affected; the wound of the vein has also inflamed. The bowels he states were moved, tongue dry. He has had leeches to the arm with relief. Died about 9 A. M.

Sectio Cadaveris, septem horas post mortem.

Thorax.—On laying this cavity open, there was found about two ℔s. of fluid in the left side, between the pleura costalis and diaphragm, the latter was highly inflamed as also the pericardium, on its external aspect. The inflammation of the diaphragm, corresponded to the seat of pain during life. Previous to his expiring, he had a convulsive fit, being the second during his illness, the pleuræ of the lungs and ribs were not much involved, and the disease appears to have been a case of inflammation of the diaphragm, termed by the older nosologists, "paraphrenesis" "diaphragmitis."

Head.—There was copious effusion in the base of the skull, and also in the ventricles. *Abdomen.*—Spleen greatly enlarged but not brittle; the other viscera appeared healthy.

PHLEBITIS AFTER DYSENTERY. *See* No. 257, p. 2.

(*By W. L. McGregor, Esq. Surgeon, in charge* 1*st E. L. Infantry.**)

July 28th, 1843.
Rept. V. S. et
Haust. Sedativ. c.
Pil. Hydrarg. gr. v.
Ol. Croton. gtt. v.
Tinct. Hyosc. ʒi.
Syrup. Simp. ʒij. m.

Andrew Anthony, private 2d. comp., aged 23 years, admitted last evening with dysenteric symptoms of five days' standing, there was pain along the colon, increased on firm pressure, the straining state continues. On making very firm pressure over the cœcum there is pain. He was bled to ℔ij. and took the sedative draught. Pulse is now hard and not full, has no uneasiness in either hypochondriac region. Tongue whitish, and red at the edges and tip.

29th.
℞ Ol. Ricini.
Aq. Menth. P. a a ʒiv.
Tinct. Hyosc. ʒi. m.

Bowels have not been moved during the night. Has no local pain.

30th.
℞ Quin. Opii. a. a. gr. iij.
Mittatur Sanguis.

Three stools without straining.

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* I have to apologise to Dr. McGregor for the mistake in his rank and name at the foot of the preceding page.

31st. ℞ Opii. gr. iij. Ol. Croton. gtt. v. Syrup. Simp. ʒij. Spt. Lavand. gtt. v. Stat. Sumend.	Has great pain in the abdominal region, and the temperature of the skin is much increased ; pulse full, hard and bounding ; great thirst, bowels very loose, the inflammation resembles peritonitis.
August 1st. Rept. V. S. Rept. Haust. Sedat.	Has very severe pain in the region of the colon, and was bled with relief; there is now well marked pain with great heat of skin, stools thin but no blood in them ; thirst urgent.
3rd. ℞ Pil. Hyd. gr. v. Opii. gr iij.	Has no local pain now ; has a bilious aspect ; stools voided without pain or straining; was again bled yesterday to ℔iiss.
5th. Appl. Hirud. xx. p. d. ℞ Opii. Ant. Tart. a a gr. vj. Enema Domestic. Cont. Lotio Mur. Am. Mist. Diaph. ℥i. omni. hora.	Has phlebitis in consequence of the wound in bleeding ; there is great pain on the dorsum of the hand with lividity of the integument ; he has had leeches applied with lotio. mur. ammon. Pulse hard ; skin hot.
6th.	Had excruciating pain in the fore-arm last evening and slight delirium ; he passed a restless night, and expired this morning about 3 o'clock.

Sectio Cadaveris horas viii. post mortem.

External aspect of the body healthy. On the right side, the whole venous system of the upper extremities was involved in disease. There was some purulent matter in the median basilic vein, where the inflammation had commenced, and the smaller veins on the back of the hand exhibited an inflamed appearance. The femoral vein, also the axillary and subclavian, were filled with thick fibrine, so tough in some places as to be with difficulty torn. In the vena cava superior, there was also a fibrinous deposit, but of less consistence than in the smaller veins ; femoral vein, also exhibited a purplish-inflamed appearance, on its internal surface, but no fibrinous deposit.

Abdomen.—Viscera remarkably healthy externally, and the slight blush on the colon upon its mucous surface shewed the active inflammation which was only subdued by the free and repeated use of the lancet.

Head.—There was effusion between the dura and pia mater, also in the base of the skull, to the extent of half an ounce.

REMARKS.—This was an exquisitely marked case of phlebitis, of which many others occurred in the hospital during the months of July and August. The dysentery was subdued, and this fine young man fell a victim to the means employed for the removal of his original complaint.

ENDO-PERICARDITIS, ORGANIZED POLYPUS IN THE COURSE OF FEVER.

(*Extract from case by A. Wood, Esq. Surgeon 4th B. Artillery.*)

This man, J. Curran, aged 42, admitted with fever on 10th Dec. 1832. The report is omitted until the 27th when it is stated, "no pain in region of the heart, pulse vibratory, feet œdematous." 29th, V. S. 31st, "Insensible, blister to the nape."

Jan. 4th. Quin. gr. iv. at nine and twelve.	Cool this morning, tongue pretty clean, remained hot for some time ; took quinine at 6 A. M.
P. M. Thermæ.	Hot stage commenced at ½ past three, still present ; it appears that the last stage is now sufficiently powerful to relieve him. Congestion seems to exist about the head as he is generally comatose during the hot stage.
5th. Quin. gr. iv. Stat. 9 ½ and 12 ½.	Tongue cleaner ; now cool ; ague came on at three P. M. To repeat the warm bath.
6th. Cont. Digitalis et Scillæ Rep. Quin. ut heri. A little sago with wine if necessary.	Had ague at four P. M. ; sweated after being in the bath, seems very uneasy and feeble to-day. Pulse frequent, and feels as if there were fluid in the pericardium ; œdema of limbs less.
P. M. Enema. ex Terebinth. Haust. ex Mist. Camph. c. T. Digital. ʒss. Sp. Mind. Solut. ℥ij. Tart. Ant. gtt. xxv. Stat. et rep. pro re nata. Rep. Enema. Sinap. to ankles, and hot bottles to feet. Sago and wine ; two eggs.	Had shivering at four P. M. ; now hot, tending to moisture ; is comatose and insensible, difficult deglutition. Pulse rapid ; no motion to-day, blister on nape of neck still open. Has remained insensible since last report ; is reported to have had a fit attended by spasmodic action of upper and lower extremities ; has had one dark motion ; motions lately have been pale-colored ; skin rather hot ; perfectly moist. Pulse rapid, reduced in bulk, a thrilling sensation of pulse, carotids not violent in action, head not hot.
7th. Hot bottles to feet; a little sago for food.	Appears somewhat sensible but does not, or cannot speak ; puts his tongue out when told, which is black and parched ; skin moist, rather hot ; action of the heart violent ; pulse very rapid, indeed spasmodic, starting of the tendons, swallows with difficulty.
P. M. Continue.	Sinking fast ; subsultus ; skin warm, moist ; pulse very rapid, innumerable, fluttering, is perfectly insensible, difficult deglutition. Died at midnight.

Remarks.—The peculiar thrilling or hissing sensation felt throughout this case is explained by the appearance of the heart on dissection. At my earnest request, I got permission to examine the chest but could not succeed in getting a glimpse of the brain.

Sectio Cadaveris.

Liver and spleen both enlarged ; no fluid in abdomen, a small quantity in the chest.

Pericardium contained ℥vi. of serum. Heart *soft* and *flaccid.* At the mouth of the aorta protruded from the heart, and adherent to the mouth of the vessel, was found an organized polypus very much filling up the cylinder of the vessel. Polypus fatty, firm; *vessels visible on its surface*, and seen distributed also through it.

N. B. This is now cognisable during life, thanks to the wonderful discoveries in diagnosis achieved by the French, from the celebrated **Moraud**, who in 1732 discovered a polypus on the right side of the heart, to M. **Bouillaud**, the *unique* instance in which it was effected by the latter I give below, as far as the autopsy and reflections go. It shews that both the aortitis and the coagulum were detected during life.*

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* ORGANIZED COAGULUM IN THE AORTA, AND AORTITIS. *from the "Clinique" of* M. BOUILLAUD.

Salle des hommes, n. 20.—Le nommé Poisnel, âgé de 25 ans, garçon de bains, demeurant rue Froidmamteau, 28, né à Vire (Calvados) ; malade depuis 3 à 4 jours, entré le 11 Juin 1836, mort le 18 Juin, à 4 heures du matin.

Diagnostic.—PLEURO-PNEUMONIE DOUBLE (*au sommet du poumon droit au deuxième degré, à la base du poumon gauche au premier degré*) *avec appareil bilieux.*

Bruit de soufflet dans la région de l'orifice aortique et de l'aorte sous-sternale.

Caillot dans l'aorte et aortite ?

Blennorrhogie vénérienne.

CASUS GRAVIS.

Autopsie cadavérique, 28 heures après la mort.

1° *Habitude extér.*—Rigidité cadavérique ; le prépuce et le gland offrent une teinte ardoisée (la rougeur et le gonflement de ces parties ont entièrement disparu) ; quelques ulcérations, dont une très-large à la base du gland ; la teinte ardoisée existe aussi sur le commencement de la membrane muqueuse de l'urètre.

2° *Organes respir. et circulat.*—Dans la moitié supérieure de la face antérieure du poumon droit, existent des adhérences déjà organisées en tissu cellulaire ; de pareilles adhérences se rencontrent à la partie supérieure de la face postérieure du même poumon, lequel, dans presque toute son étendue offre la consistance du foie et ne contient aucune bulle d'air ; toutefois, l'hépatisation est plus avancée dans le lobe supérieur que partout ailleurs ; tout ce lobe est en hépatisation grise ; il est ramolli et friable, et de la surface des déchirures qu'on y pratique s'écoule du pus bien caractérisé, mélangé d'un peu de sang, ce qui lui donne l'aspect de la lie de vin (*murcu*) ; l'hépatisation grise diminue graduellement en tirant vers la partie inférieure du poumon, et tout à fait à la base, elle est remplacée par une hépatisation rouge avec congestion à la fois sanguine et œdémateuse. A l'incision des principaux troncs vasculaires de ce poumon, on les trouve remplis par des caillots commençant à se décolorer ; la blancheur jaunâtre des parois internes de ces vaisseaux contraste avec la rougeur foncée des parois internes des bronches.

Le poumon gauche est souple, élastique, un peu engoué, œdémateux à sa partie la plus déclive, parfaitement sain d'ailleurs ; les grosses bronches de ce côté offrent une rougeur qui disparaît dans les petites ; on trouve aussi quelques caillots dans les gros troncs vasculaires de ce poumon.

A la face supérieure de la moitié droite du diaphragme, existe une exsudation pseudo-membraneuse, à surface inégale, rugueuse, ayant environ l'étendue de la paume de la main, s'enlevant au moindre râclement avec l'ongle.

La partie supérieure de l'aorte (à partir des artères qui naissent de sa crosse jusqu'à un pouce au-dessus de son insertion dans le ventricule gauche), *là où ce vaisseau est en contact avec le poumon enflammé, offre extérieurement une belle rougeur qui contraste avec la blancheur de ses autres portions. Né dans l'aorte thoracique descendante, un caillot parcourt tout le trajet de l'aorte ascendante, s'épaississant et s'organisant de plus en plus, à mesure qu'on s'approche de la crosse aortique, où il est élastique, glutineux, d'un blanc parfait, du volume du petit doight, assez semblable pour la forme et la couleur au cordon de la moella épiniére dépouillée de ses enveloppes ; il est adhérent aux parois dont on ne le détache que par une assez forte traction ; il s'élargit considérablement et s'épanouit én quelque sorte en pénétrant dans le ventricule gauche qu'il remplit aux trois quarts, laissant seulement vers la région externe de ce ventricule un assez étroit passage au sang ; ce caillot se réfléchit autour de la valvule mitrale, s'insinue dans l'oreillette gauche où il est en partie noir, en partie blanc, moins dense que dans le ventricule ; dans son passage à travers l'orifice auriculo-ventriculaire gauche, il s'entortille autour des tendons valvulaires et a contracté d'assez étroites adhérences avec eux, ainsi qu'avec les lames de la valvule bicuspide ellemême (celle-ci est d'ailleurs bien conformée, sans altération de couleur ni d'épaisseur).*

La membrane interne de la crosse de l'aorte présente une teinte rosée uniforme, laquelle, sur les valvules aortiques, se change en une vive rougeur qui ne s'efface pas par le lavage, et contraste avec la blancheur de la membrane interne du ventricule gauche et des valvules de l'artère pulmonaire (il n'existe aucune trace d'imbibition cadavérique).

Le ventricule droit contient aussi un énorme caillot, dense, blanc, fibrineux, qui s'entortille autour des colonnes charnues et des tendons de la valvule tricuspide, et pénètre dans l'oreillette droite qu'il remplit presque complétement ; l'organisation de ce caillot parait plus récente que celle du caillot de l'aorte et des cavités gauches ; la valvule tricuspide est un peu rouge en certains points et légèrement épaissie.

RHEUMATIC METASTASIS TO HEART AND STOMACH.

(By Allan Webb, Esq.)

Lieut. B.—, H. M.——Regt. aged 22, having followed from the age of 18, a very dissipated life, on the continent; and especially given up to late hours, play, &c. and thus frequently exposing to cold, a heated and excited body, already predisposed by hereditary gout, suffered for four years more or less from rheumatism, and at one time he lost the use of his limbs. But is now in appearance a fine handsome looking man, lately married to a young wife. Has never been long free from rheumatic affections, and since he left England, has frequently been so bad as to lose the power of using the right leg in walking, at his best time he limps slightly. The severe pain, comes on suddenly without warning, and after sitting down at table he will sometimes be totally unable to rise; it will move with remarkable celerity from hip to ankle, or foot, rarely attacks other limbs. When suffering severely he complains of coldness about the hip. Has rigors, sometimes flushed cheek, rarely is the pulse affected, usually about 70 and full, respiration unaffected, no pain in the head. I observe that when he complains less, or none at all of pain in his limbs, that the stomach is affected with flatulence to a great degree. Generally speaking his appetite is good, he lives well, has little exercise, his bowels regular.

Oct. 6th.
Bath tepid, grad. 100, after being in this quarter of an hour, pulse 120.
Felt faint.

Called to him, he was unable to move, pain so great in limbs generally, particularly right, pulse full, skin dry and hot. Had him well wrapped up after the bath, he perspired four hours. I then bled him to about ℥xvj. blood neither cupped nor buffed.

3° *Organes digestifs et annexes.*—Foie volumineux, comme infiltré de la matière jaune de la bile.—Rate ridée, un peu molle, mais en somme peu altérée.—La membrane muqueuse de l'estomac est tapissée d'une couche épaisse de mucosités gluantes, et n'offre d'ailleurs de notable injection que vers le grand cul-de-sac (elle est blanche, un peu molle dans la région pylorique).

Réflexions.

C'est, si je ne me trompe, la première fois qu'une aortite aiguë de l'aorte sous-sternale a été *diagnostiquée* d'une manière presque certaine. Je dis presque certaine, car en portant le diagnostic dont il s'agit, tel qu'il se trouve en tête de cette observation, je fis placer un point d'interrogation pour exprimer que ce diagnostic n'était pas sans quelque incertitude. L'existence d'un bruit de soufflet dans la région de l'aorte, chez un individu jeune, atteint de pleuro-pneumonie aiguë, et chez lequel on ne pouvait soupçonner aucune maladie *organique* du cœur ou de l'aorte avant le début de sa pneumonie, me fit d'abord annoncer la présence d'un caillot dans l'aorte. Je présumai ensuite que, dans le *cas actuel*, ce caillot se rattachait très-vraisemblablement à une aortite coïncidant avec une violente pleuro-pneumonie. Ce n'est, d'ailleurs, qu'après avoir bien *pesé toutes les circonstances* que je hasardai ce diagnostic, que l'autopsie cadavérique a pleinement justifié. En effet, un caillot, bien êvidemment formé longtemps avant la mort, remplissait en partie l'aorte sous-sternale, dont la membrane interne était le siége d'une rougeur indépendante de toute imbibition (1). Ajoutons qu'a l'extérieur l'aorte, dans les points où elle était en contact avec le poumon et la plèvre enflammès, offrait une rougeur et une injection qu'on ne pouvait raisonnablement considérer, comme indépendante d'un état inflammatoire. Peut-être même, cette phlogose externe de l'aorte avait-elle précédé la phlogose interne du mème vaisseau.

Au reste, le lecteur peut laisser de côté toute cette question, car il s'agit ici surtout de pleuro-pneumonie, et il peut apprécier, s'il le veut, autrement que nous, et le caillot, et la rougeur tant interne qu'externe de l'aorte.—*Clinique Medicale par* J. BOUILLAUD *Obs*, *II. p.* 234, *Bruxelles* 1838.

Oct. 7th. Opii. gr. iss. Cal. gr. xij. h. s. s.	*Is still in great pain. Did not takethe medicine last* night, obliged to attend on Mrs. B. who was ill, to take to-night cal. and op.
Oct. 8th.	Says it griped him severely and purged him six or seven times, that he felt so faint he could hardly sit up, but was much better in the evening, had some broth and arrow root.
Oct. 9th. ℞ Hot brandy and water, *statim.* Pulv.Dov.gr.xv.h.s.s.	In the morning walking about freely, had no pain, but after dining upon meat and taking wine, was seized with pain in the bowels, sickness and purging. When I saw him he had severe pain in his bowels, lay with legs drawn up, pulse 130, hard, headache and wandering, skin hot and dry. In half an hour left him much relieved.
Oct. 10th. P. M.	Some delirium in the night, but better this morning, disposed to sleep.
℞ Tinct. Opii. ♏ xxx. Ol. Ricin. ʒiij. Ol. Menth. p. gtt. Pulv. Acac. q. s. ut ft. Emulsio c. aquæ ℥iss, statim sumend.	4 P. M. Called to him; countenance anxious, severe pain in bowels, twisting about the navel, legs drawn up, some tenderness on pressure, bowels freely open, tongue clean and moist, slightly white, pulse 120, skin universally hot, particularly the abdomen, eructation distressing. He now became anxious and restless.
	Pediluvium used for ten minutes, relieved him from *severe pain in chest and intermitting pulse,* which came on after the pain left his bowels.
11th. ℞ Tinct. Opii. gt.xxx. Spt. Æth. Nit. Tinct. Lav. a.a. gtt.. xl. Ol. Menth. Pip. gtt. ii. ♏. Stat. sum. A cup of coffee in two hours if awake.	Called up at 2 A. M. he laboured under some pain of the bowels, pulse 120, skin hot, less headache. But he complains of *great oppression at cardiac region*—face pale and anxious, *pulse intermits to an alarming degree the intermissions being so long in duration.* He has then a most anxious expression. The sounds of the heart are confused, and feeble, from this state a pediluvium with salt and mustard again relieved him.
8 A. M. Tea and chocolate ℞. Hyd. Sub gr. i. Pulv. Opii. gr. i. Ant. Tart. gr $\frac{1}{12}$ 4 tis. horis. sum.	Much better, no headache, no pain in chest but has had little sleep. Has perspired most profusely for three hours, skin now soft, moist, pulse 100, soft, has still occasional pain at umbilicus, tongue covered with whitish brown fur, moist. His mouth became somewhat sore from the medicine. But he had no return of the disease for months afterwards.

CHRONIC RHEUMATISM—DEATH FROM PERICARDITIS WITH OBSCURE SYMPTOMS—DIARRHŒA, WITH THE MUCOUS COAT OF THE COLON WITH DARK GREY PATCHES AND STREAKS—TWO OR THREE OUNCES OF SERUM IN THE CAVITY OF THE CRANIUM; NO HEAD SYMPTOMS.[*]

Thomas Clarke, seaman, ætat. 48, emaciated and of sallow complexion. From the statements which were sent to the hospital regarding this seaman, it appeared, that in the early part of 1838, whilst on service in the Persian Gulf, he was affected with gonorrhœa followed by phymosis. He was brought under the influence of mercury, and whilst in this state, was exposed to cold on the voyage to Bagdad, in the month of July 1838, and in consequence became affected with rheumatism. In March, April, and May 1839 he was affected with a copper-coloured eruption ; suffered from restless nights, and pain of the hips and thighs. He was treated with decoction of sarsaparilla and blue pill, till the gums became tender, and he was sent to Bombay for change of climate.

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[*] Taken from the admirable cases illustrative of the pathology of Bombay, by Dr C. Morehead, published No. vi. of Transactions of Bombay for 1843, p. 92.

He was admitted into hospital on the 16th July 1839 ; he stated that he had suffered from diarrhœa during the voyage, but that it had ceased. He was sallow and emaciated, and suffered from pains of the lower extremities, stretching along the shins, increased at night, and attended with thickening in the course of the right tibia.

A variety of treatment was tried,—hydriodate of potass with decoction of sarsaparilla or decoction of cinchona ; quinine with diluted sulphuric acid ; infusion of chreat, with diluted nitric acid ; chalk and mercury ; dover's powder ; rhubarb and soda, &c. according to the state of the bowels ; anodynes, chiefly the tincture of the muriate of morphia at bed time. The nitro-muriatic acid foot-bath was also tried. The emaciation, the sallowness, and the pains, continued with occasional diarrhœa, till the 9th September when it is thus reported :—" Pulse feeble and skin moist, was frequently purged yesterday, ℞ quinine, hydrarg. c. creta. gr. ii. opii. ss. confect. aromat. q. s. ut. ft. pil. to be taken thrice in the course of the day. *Vesp.* No return of bowel complaint ; pulse feeble. He takes no food. He is depressed. Contin. pilul. every four hours ; let him have ℥ii. of mulled wine now, and let one ounce be continued every second or third hour with sago." 10th, " Is asleep at present ; one dejection in the night. Continue as yesterday. *Vesp.* Has taken wine four times and three pills ; skin is now cold and pulse feeble, and the respiration is laboured ; he makes no complaint of pain. The sounds of the heart are natural and the respiratory murmur is heard on both sides anteriorly. Applic. emplast. vesicat. magnum epigastrio. Apply heat to the extremities, and sinapisms to the feet. Continue the wine ℞ mist. camph. ℥i. carb. ammon. gr. x. tinct. zingib. ʒiss. ft. haust. To be taken every second hour." Died at 7 P. M.

Inspection twelve hours after death.

Body somewhat emaciated.

Head. The vessels exsanguine. The convolutions of the convex surface of the brain were partially veiled with serum, and there were between two and three ounces at the base of the skull.

Chest. The cartilages of the ribs were ossified, and required to be divided by the saw. There were firm and old adhesions of the left lung to the costal pleura. The right lung did not collapse, it was emphysematous anteriorly, and œdematous posteriorly. In the pericardium, there were three ounces of turbid serum, and the lining membrane was generally dotted red. The serous covering of the heart was in places opaque, and pearly ; at the apex and over the left auricle, it was dotted red. The cavities of the heart, and chiefly those of the right side, were somewhat dilated, but to little extent. There was no hypertrophy ; there were fibrinous polypi in both ventricles, and the valves were generally more opaque than is usual.

Abdomen. The mucous lining of the stomach presented a rosy tint, but was healthy in texture. The liver somewhat enlarged, was indurated, and mottled red and white. The contents of the colon were feculent, much of its lining membrane was streaked and patched dark grey, but the texture was sound. The follicles were here and there distinct. The spleen and kidneys were nearly healthy."*

FORMATION OF FAT IN THE HEART AND NEIGHBOURING BLOOD VESSELS.†

See No. 558, p. 17 ; *Nos.* 775, 774, p. 25.

(*By J. Esdaile, Esq. M. D., C. A. S.*)

At the desire of the Magistrate, I examined the body of Oojeer Ali on 30th July, and found the following appearances. The body was that of a man of sixty years of age, plump and sleek, but not corpulent : the only appearance of injury externally, was a bruise on the inferior angle of the left scapula, where the skin was abraded and blood effused among the muscles. On opening the body, there was a deep layer of yellow fat beneath the skin, and fat was extensively deposited on all the internal organs ; the interlobular spaces of the *lungs were studded with masses of fat* : all the organs appeared extremely healthy. On opening the pericardium, there was more than the natural quantity of fluid, and the heart was large and fat. When the aorta and large blood vessels were cut across, a dense, yellow substance, exactly like fat, was seen filling them, which also occupied both auricles, becoming fibrinous in appearance, as it passed through the auriculo-ventricular openings, and mingled with the calumnæ carneæ of the ventricles, from which it could scarcely be distinguished, and could with difficulty be separated from them. This substance, when pulled out of the aorta and carotid arteries, retained their shape for some distance, gradually becoming fibrous, and ending in coagulum. The coronary arteries were also filled with it. Where most dense, *this deposit was covered with a red, vascular coat,* which could be pulled off, and on being squeezed, gave out abundance of oily globules, which floated on water.

I did not remark any signs of inflammation. The history given by his friends was, that eight days ago, a man had given him a severe blow on the back with a cudgel ; he complained of pain soon after, took to his bed, and had not eaten since.

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* The following case is annexed from its resemblance to that, just detailed. The subject of it was in hospital about the same time, and the symptoms noted came on a few days after the unsuccessful issue of Clarke's case. My attention was at once arrested by the resemblance of the symptoms of collapse, and of much of the previous history of the two cases.

Chronic Rheumatism ; metastasis to the Pericardium. Recovery.

Adam Lowder, ætat. about 40, Serjeant. Nizam's Service, of broken habit from climate and sickness, was admitted into hospital for the second time on the 10th September 1839, ill with chronic rheumatism, affecting chiefly the ankles and head. On the 24th it was reported that "the ankles were less swollen and painful ; headaches have ceased." On the 25th "was troubled last night with uneasy sensations about the back and chest ; legs and feet more tumified." At the evening visit he had pain shooting from below the left scapula to the ensiform cartilage, and attended with much oppression and sense of faintness. The pulse feeble and skin cold ; the sounds and impulse of the heart are feeble but not otherwise affected. The chest was blistered, sinapisms were applied to the feet and legs ; he was cupped on the back ; took calomel with tartar emetic and opium, finally, with ipecacuan and quinine, and the nitro-muriatic acid foot-bath was used. The chest symptoms decreased, the pulse became developed, the gums became affected on the 3rd October, and he was discharged well on the 14th.

† India Journal Medical Science, Dec. 1844.

This case appears to me curious, as shewing the tendency of any accidental formation in the living body, to take on the prevailing habit of the system. The progress of the disease appears to have been this : a violent blow over the region of the heart, would seem to have deranged the circulation, already lowered by old age ; fibrine began to be slowly deposited, became organized, and was converted into fat, the secretion, the blood vessels, were most disposed to form, and accumulated until the circulation was obliterated."

ANASARCA, CHRONIC ENDO-CARDITIS, BRONCHITIS. No. 1317.

(*Reported by Tumeez Khan, Clinical Clerk, Case under care of Dr. Stewart.*)

Admitted yesterday into the Medical College Hospital female ward, Peggy, æt. 15, a native converted slave girl, labouring under the following train of symptoms of about one month and 15 days' duration :—Considerable œdematous swelling of the legs and feet, pitting on pressure, the upper limbs affected in like manner. Face puffy and pale. Abdomen full, and contains fluid, as evinced by fluctuation. She also complains of slight difficulty of breathing. Her tongue is clean and moist, skin soft and relaxed, pulse soft and small, bowels regular, urine not voided freely. Appetite pretty good. As regards her previous history, she states having been ill with fever for about a fortnight, with pain in the right side, which often extended towards the shoulder. At present there is enlargement with induration of the liver.—Spleen seems to be very little affected.

May 1st 1846.
℞. Pulv. Jalap Co. ʒi.
Pulv. Scillæ gr. ij. St.

2nd.
Blister over the liver.
℞. Pot. Acet. ʒi.
Pot. Nitrat. ʒii.
Tr. Scillæ ℥ss.
Tr. Digitalis ʒss.
Spt. Œth. Nitros ℥ss.
Spt. Junip. Co. ℥j.
Aqua. ℥ viij. A table spoonful every hour.

Patient had six copious and free evacuations from the dose of physic, did not sleep very well, in all other respects she is much the same. The liver continues enlarged, and there seems to be slight tenderness.

6th
Hydr. Chlorid.
Pulv. Digital. a gr. i.
Pulv. Scillæ gr. ij.
Pulv. Jalap. Co.℈i. ter in die sumend.

Patient continues much in the same state. The urine is secreted and voided copiously, her bowels are not well open, the œdema is very little diminished, her face is pale, conjunctiva yellow. The enlargement of the liver continuing. Does not complain of any difficulty of breathing now. Skin cool and relaxed, tongue clean, pulse soft and small.

9th.
The same powder with ʒss. of Compd. Jalap for every dose.

Her bowels are well open, there are about 7 to 8 motions daily. Makes water freely, œdema much diminished, puffiness of the face, likewise gradually diminishing. Tongue clean, pulse soft and small, appetite improving.

[Reported to be slightly improved on the 12th, 14th, and 16th.]

17th. Patient seems to be very bad to-day, she has not had a wink of sleep owing to a troublesome dyspnœa ; she cannot even lie on her bed, but states that she feels easier when standing, and stooping on the pillow. Her lips, face and eyelids are all puffed and bloated, and blanched ; respiration hurried and difficult, the action of the heart tumultuous, and bruit de soufflet can be distinctly heard. Her pulse is frequent but very feeble, tongue clean and moist, skin cool, bowels well open, appetite not very good, urine voided freely. The œdema and swelling of the lower limbs seems to be increased much, and the legs are tense and shining. (Cont. Powders.)

18th.—Has had 6 stools since the last report, and voided urine about as many times, the dyspnœa is somewhat lessened, and the action of heart not so violent. In every other respect she is in much the same state.

20th.—The œdema of the legs continues the same, and does not look to be at all diminished. Her bowels are well open, makes water freely. The enlarged and hardened state of the liver continuing, there seems also to be fluid in the peritoneal cavity. Her breathing is again much embarrassed, and there is slight cough. The eyelids, and face are all puffed, and swollen, The " bellows sound" of the heart is distinctly audible. (Cont. Powders.)

22d.—Since last night a very curious and striking change has taken place, and that is, the œdema on the whole of the right side of her body is very much increased, whilst that of the left has wholly disappeared, and besides this, she has lost every controul and power over the left leg and arms, but the sensibility of the parts continues unaltered. She has had very copious and free motions since the last report, and in the like manner voided the urine. Pulse small, and soft, tongue clean and moist, skin cool and relaxed, face bloated but pale and exsanguineous, the action of the heart continuing unaltered morbidly. (Cont. Powders.)

24th.—Continuing much in the same state. No power has yet been regained in the left extremities, nor are the œdema and tense swelling of the right side gone. Bowels well open, urine made freely, breathing accelerated. (Cont. Powder.)

25th.—Continuing very much in the same state. Bowels well open, tongue clean, urine made freely, pulse soft and small, skin cool, breathing laborious, and complains of slight pain along the sternum, and extending along the sides of neck on either side, and towards the arm pit. Bruit de soufflet is audible. (Cont. med.)

26th.
Blister over the heart.
℞. Mist. Creta ℥ viii.
Tr. Kino.
Tr. Catechu a a ℥ss.
——Opii.
Vin.Colchic. a a ʒii.
℥i. every hour.

Patient is very restless, she has not at all slept since the last report, her eyelids and face are very much puffed and swollen, the œdema of the right extremities continuing, and the want of power not yet restored to the left limbs, which have quite lost their œdema. She cannot at all lift up herself from the bed. She has got a violent purging, and makes water pretty freely. She states that she wont bear any more purging. Breathing rather difficult and hurried, pulse soft and very small, heart's action same.

4 P. M. Patient seems to be very bad just now. Her breathing is very much embarrassed, and the action of the heart violent, she passes involuntary stools, the eyelids are so much puffed that she cannot see any object. In every other respect much the same. Expired at 1 A. M.

Autopsy, eight hours after death.

General Appearance.—The anasarcous swelling only seen on the right side of the body, having disappeared from the left. *Head* not examined.

Chest.—Considerable effusion in the pleura, the lungs greatly gorged with blood; gray tubercles in the upper lobes. The bronchial tubes generally inflamed and covered with thick ropy mucus, and the interstices of the cartilaginous rings are rough from effusion of fibrine. The right bronchus is absolutely coated with fibrinous exudation. The bronchial glands contain tubercular matter.

Heart.—In general the substance of the heart softened, and the size of the organ twice larger than natural. The outer surface of the left auricle is rather opaque and looks as if covered in places by deposits of lymph. The auricular cavity (left) considerably dilated, the serous lining rendered perfectly opaque, white, and thickened, from depositions of layers of lymph. The auriculo-ventricular opening was much constricted, and is not sufficient to allow the passage of a good-sized quill. "This is caused by thickening and rigidity of the valve, the edges of which have probably adhered." The opening towards the auricular appendix, looks larger, round, and annular, with rounded lips, and the appendix itself sacculated. The wall of the left ventricle hypertrophied. There is a small, rather loose coagulum in its cavity, and adhering partially to its wall. The mitral valve thick, hard and opaque, and approaches almost to a leathery state.

The right auricle externally studded with granular and papillary spots, and which, evidently, are old depositions of lymph. The right auricular cavity immensely dilated, and the musculi pectinati extraordinarily developed. The cavity is almost all filled up, by an old, fatty looking, organized coagulum, distinctly seen to be covered with membrane. The coagulum reaches down in the auriculo-ventricular opening, and is adherent by fibrinous, rather weak bands, to the parietes of the auricle. The tricuspid valve is thick and opaque more like a leather partition than a valve with a small opening about the size of the little finger. A small coagulum is entangled in the meshes of carneæ calumnæ at the apex of the ventricular cavity. The pulmonary meatus is dilated like *a third ventricle*, the pulmonic valves are sound. The aortic valves are thick and unusually coriaceous. The ventricular coagulum on the right side is much more firm and adherent than that of the left. The pericardial investment is opaque generally. Its cavity contained about 6 ounces of fluid.

Abdomen contained a considerable quantity of clear yellow serum, with many large albuminous clots loosely floating in it. *Spleen* exhibits several cicatrices of former abscesses. *Liver* large and soft, kidneys flattened and granular. Uterine system healthy, and virginal.

AORTITIS—ENDO-CARDITIS. No. 1314.

(*Reported by Tumeez Khan, Clinical Clerk, Case under care of Dr. Jackson.*)

Admitted into the Medical College Hospital Geo. Smith, æt. 30, an European sailor, labouring under the following symptoms of about 5 weeks duration: At present there is great difficulty of respiration, breathing being short, hurried and shallow, pulse full and frequent, and attended with a peculiar jerking, skin hot and dry, face flushed, and approaching to a bluish lividity, the bowels being costive. There is enormous œdematous swelling of the lower limbs, and this does not yield on pressure, there is also puffiness of the abdomen, arms, and face. Urine is stated to be very scanty and high-colored. When the œdematous parts are pressed, it gives a painful and uneasy sensation. Has slight cough, and a choking sensation within.

24th April 1846.
Venesectio ad ℥xxii.
℞. P. Jalap. Co. ʒi.
P. Scillæ gr. iv.
℞. Pil. Hydr .gr. iv.
Pulv. Scillæ gr. ij.
P. Digit. gr. i.
In Pulv. Ter in die.

As to the prior history of the case, the patient states that (to use his own expression,) "for some years back he has been short-winded, and had a cough on him,"—and that about six weeks ago he had an attack of fever, and slight hepatic derangement, and of which he got well by appropriate means being resorted to on board; and he further states that after this, having laboured hard, he exposed his body to a cool Southern breeze on the vessel, and from that night he has got all these. In the last four weeks has had only two doses of castor oil.

25th.
℞ Ext. Elater. gr. $\frac{1}{3}$.
Pulv. Zingib.
Ext. Gentian ā ā gr. j.
M. Ft. Pil. ter in die.

States that he has been much benefited by being bled, the drawn blood was both buffed and cupped. The extreme dyspnœa being relieved. Had five stools, and made water twice.—Pulse soft but attended with that peculiar jerking, tongue clean and moist, skin soft and relaxed.

26th.—The elaterium pills operated very freely, and he had seven copious watery evacuations. Urine is also made freely, and its specific gravity being 1022.—The œdema and swelling of the parts very perceptibly diminishing, and they pit on pressure. Countenance quite relieved of anxiety, tongue clean and moist, skin cool, pulse soft but accompanied with the same jerking impulse.

Patient complains of slight oppression and pain within the chest, and the breathing seems to be rather distressed.—Appetite pretty good, thirst not urgent. (Cont. pil.)

28th.—Patient complained of a very disagreeable and choking sensation the whole of the last night, and which yet continues, his breathing seems to be embarrassed and hurried. Professor Jackson examined the case and pronounced that "bruit de soufflet" was distinctly audible. There is a strong arterial pulsation in the anterior inferior triangle of the neck on the right side, this extends to the superior triangular space along the course of the carotid, and also on either side in the course of both the subclavian arteries. If the hand be placed thero, a sensation is communicated to the fingors much akin to the aneurismal thrill; and is very striking, and peculiar, just where the arteria brachio cephalica lies under the sterno-clavicular articulation. The Professor further stated his impression, that the case seems to be rather one of valvular disease of the heart with hypertrophy, than a case of aneurism. The action of the heart is tumultuous, pulse of the same jerking character, tongue clean, bowels well open, œdema very gradually diminishing. (Cont. Med.)

29th.—Patient had seven stools since the last report, makes water pretty freely. The distressed and embarrassed respiration continuing. Pulse of the same nature, tongue clean and moist, skin cool. (Cont. Med.)

30th night.
℞ Hydr. Subm. gr. x.
Ext. Opii. gr. ij.
St. sum.
Repeat after 2 hours.

Since last night the patient has been taken ill with cholera, he has had four stools last night, and as many this morning, the evacuations copious and purely characteristic of cholera. There is extreme irritability of the stomach, and constant vomiting, complains of spasms of the abdominal muscles, and of the calves of legs; countenance anxious, eyes sunk, voice husky; cold clammy sweats over the whole body. Pulse not at all changed in its character, but continues beating with the same degree of frequency and jerking. To-day it has also been observed that all the other arteries, even their small ramifications (such as digital branches) have a beating of the same jerking nature. Complains of much pain in the loins, has not voided urine yet, thirst urgent, tongue dry, parched, and brown, the œdema of the legs, and arms very considerably diminished, the skin much shrunk.

May 1st. 6 A. M.
℞ Quin. Disulph.
Camphor. a a gr. iv.
Hydr. Subm. gr. x.
Repeat after 3 hours.
Cont. Ammon. Mist.

Patient had the pills repeated twice. As the patient became very low during the night he had æther and carbonate of ammonia mixture, also brandy and water.

2nd.
℞ Sodæ Carb. gr. x.
Pulv. Ipecac. Co. gr. v
M. ter in die.

Patient had one stool this morning and none last night, the evacuation being black in colour and thick, there is still a slight tendency to vomit. Complains of great thirst, and of the oppressive choking sensation in the chest. The œdema and swelling quite disappeared. Pulse continues to be frequent and jerking, and the action of heart tumultuous. Did not sleep very well. There is copious flow of perspiration, and patient seems to be very low.

4th.
Calomel and Opium Pills.
Haustus Effervesc. c. Æth. et Ammon.
10 A.M. Opii gr.ij.St.

Since last night the patient has again been taken with purging and vomiting. The evacuations being congee like. Complains of a choking sensation in the chest, and of a sinking at the epigastrium; countenance looking ghastly, voice feeble, a blue areola surrounding the lids, also a blue and shrivelled state of the hands; complains of excessive thirst, skin cool and bedewed with copious perspiration. Tongue dry and furred, pulse frequent and jerking. Has no spasms.

11 A. M.

Patient is getting worse, has had many stools, there is gradual prostration, pulse continues jerking, the carotids throbbing and beating violently; countenance ghastly and cadaverous. There is no heaviness about his look, nor any incoherence of manners, there is copious flow of perspiration, articulation inaudible.

Patient gradually expired at 12 A. M.

Autopsy two hours after death.

Chest.—Lungs healthy and not adhering to the walls of chest on any side. Heart very large and hypertrophied. Pericardium free from any morbid action. At the base of the right auricle patches of inflammation were observed. In some places lymph has been thrown out, a long time ago, and has now become granular, along the course of the coronary vein lymph has been shed, and become hairy in form. The left ventricle immensely dilated, and the parietes hypertrophied. The aorta internally greatly diseased, *and there are marks of inflammation in every shape and form, as well recent as old.* The arch is rather sacculated and dilated. In certain places those inflammatory marks are in patches, and in some places ulcerated, but not quite through all the coats. The semilunar valves at the root of the aorta much thickened, and diseased, and approaching to a semi-cartilaginous state, and when these three valves are brought together, they do not seem to close the opening perfectly, and hence have allowed during life a free regurgitation of blood back in to the ventricle. In some places within the ventricle marks of inflammation are observed.

OBSERVATIONS

UPON THE HEART, AND ORGANS OF CIRCULATION.

Before reviewing this assemblage of pathological facts and cases, I cannot refrain from a passing tribute of grateful homage, to the genius of our great countryman, the illustrious HARVEY; for his grand discovery of the circulation, is the guiding star, by which we are conducted through all this long chain of cause and effect, as connected with diseases of the heart, and circulation. It was no happy guess however, no mere lucky chance, that led the acute intelligence of this great man, to a discovery the most important in medicine. But it was the reward of unwearied labour in the accumulation of facts, and of a rigorous induction from facts so accumulated. His treatise '*De Motu Cordis*,' so rich in anatomical and physiological illustrations, drawn from every part of the animal kingdom, shews this. His wide range of philosophical dissections, of living, and dead animals, enabled, him to simplify his subject at the outset, by considering the circulation, *first* in animals possessed only of one auricle and one ventricle, and thus to divest it of the complication it receives, by the circulation through the lungs being superadded.

He repeated many of GALEN'S experiments upon the blood vessels, and was fully convinced of the doctrine universally insisted upon, and repeatedly proved in the writings of GALEN, especially in the celebrated controversy with ERASISTRATUS,* that the left ventricle of the heart, and all the arteries contain blood, and not air. HIPPOCRATES had erroneously taught† that this ventricle was the seat of the mind. Nor can we appreciate the amount of benefit counferred by our great countryman, unless we consider that this grand truth, that the arteries circulate blood, had been forgotten for more than a thousand years. Fourteen hundred years after Galen's numerous experiments of tying the carotid, iliac,[*] and other great arteries in living animals, Harvey, in the beginning of the 17th century, had to appeal to these very experiments, in order to prove, that the arteries contain blood, and thus to establish the foundation of his own theory.[†] In fact we must not be ignorant, that about two hundred years ago, A. D. 1615, the common belief (uti vulgo dicunt) in England, and in Europe generally, among educated medical men, was, that arteries circulated the *air*, instead of the blood.

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* The whole of the book "*An sanguis in arteriis natura contineatur*," was written by GALEN to oppose this fallacy of ERASISTRATUS and his followers, of air only, being contained in the arteries. He says "Cur igitur is, qui ab arteriis exit, non item exufflat,ut ille qui è pectore, interiore abdominis membrana, et gutture uulnerato prodit: quanqua risum alicui fortasse mouebimus, si hoc ex aliis colligere moliemur: cum liceat ipsos admonere consideret, *quam aperte sanguis ex arteriis prosiliat, quando cum impetu uniuersus eru'pit*, nam quo calidior, eo uapori proximior est sanguis ,qui in arteriis clauditur et tamen ipse secundum se, *non uapor, non aer, non æther est, aut spiritum* in se ullum continet sanguinem autem arteria uel tenuissime, cuspidis acu-perforata statim ejaculatur." But not to multiply quotations to show this, besides what I have now quoted cap. 2; we have *Sanguinem in arteriis contineri, evidente argumentatione demonstrat*, as the subject of *cap.* 1. *Spiritus a corde expelli totus non potest ex arteriis.* cap. 3 *Absurda, qua Erasistrati sequuntur cap.* 4, *Quid Erasistratum in errorem induxerit, cap.* 6, &c.

† "Mens enim hominis sinistro ventriculo insita est, et reliqua animæ imperat." *Hip. lib. de corde.* Edit, 120 Lugduni. 1564.

Indeed all the discoveries of Galen upon this subject appear to have been soon forgotten. Within four hundred years after his death, we find Theophilus Protospatharius, who has been styled the "best epitomist" of Galen, going back to the old physiology and making the heart a breathing organ: teaching A. D. 610, that the left side of the heart contains air,[*] and heat, and transmits them by means of the arteries to all parts of the body. He does not indeed with Hippocrates make the heart the seat of the mind, although this was the ancient physiology of Assyrians, Hebrews, Greeks, and Romans, and is still the poetical physiology of our own day; for the observations and experiments recorded by Galen, ought upon this subject, to have satisfied the most *unbelieving hearts*,[†] and had doubtless satisfied Theophilus; but, as respects the arteries, he appears to have misapprehended his great master's expressions, for Galen admits that air is added to arterial blood, whilst he denies that arteries carry other than real blood. He says air is not forced into them from the heart, but is attracted by them, not only from the heart, but from all parts of the body. Considering that he knew nothing of chemistry, nor of the compound nature of the air; this is a wonderful advance towards our notions of oxygenation and carbonization of blood. He appeals in support of his opinion to Herophilus, Praxagoras, (B. C. 341) Philotimus, Diocles, (B. C. 354) Plistonicus, (B. C. 327) and Hippocrates, (B. C. 460) as having held the same views.[‡]

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[*] "Administratio talis est. Una ex grandioribus arteriis, quæ in cute extat cujusmodi juxta inguina est, nudatur maxime siquidem in illa consectionem ha'c facere consuevi funiculus altiori ipsius parti circundatur: deinde sinistræ manus digitis, q' fieri potest longissime a funiculo arteria stringitur, prius qu' uero grandem ramum de se miserit, recta linea ad longitudinem dissecatur tantum, ut cauum aliquod corpus inter laqueu' et digitos queas inserere itaque præparetur calamus prætenuis, ex eorum numero quibus scribimus, aut æreum aliquod ejusmodi de industria factu' quod digiti unius longitudinem habere sufficit unde manifestum cuadit, hac in administratione nullum sanguinis fluorem ex arteria diuisa accidere: elatiori quidem parte unde sanguis defluit, fune intercepta; demissiora uero ob funem non amplius pulsante, et a digitis constricta. Multo igitur ocio corpus concau', quod in arteriam demittitur, licet tibi divisæ tunicæ ipsius parti subjicere: deinde lino tenui arteriam simul cum calamo orbiculatim comprehendere, curantem, ne ulla pars calami arteriæ sectionem erumpat. Sit autem calamus tali crassitudine, sicut dixi ut in arteriæ tunica nihil laxum hæreat. Uolumus namq' in loco ipsum persistere. neque altius, quam, arteriæ divisio est, elatum, neque demissius. Quo facto laqueum solves: et digitos, quibus arteriam securitatis gratia constringebas. si libeat ad partem ipsius trans pones, qu' calamo confinis est. sin autem ut retuli impactus fuerit calamus, ligatusq' diligenter, non majis tenere te opus erit, sed ociosus ita poteris conspicere. superiorem quidem calami arteriæ partem etiamnum pulsare, sicut antea, inferiorem autem omnino destitutam. Igitur quod re uera apparet, ita habere dicimus." *Gal. de anatom. administ. lib* vii. cap 16. Yet people would not be convinced, and Erasistratus seems to have wilfully deceived them. That the left ventricle contains blood he thus proves

"Redibo rursus ad uiua animalia: ac tibi ostendam denudato corde, ex eo sanguinem statim profundi, non solum si scalpellum in sinistrum ejus sinum, uerum etiam si stilum aut acum demiseris." *Gal. de Hippoc-et Platon decretis lib*. i. cap. 5.

[†] "Si enim iisdem usibus inserviant pulsus ac respiratio, et in diastole introsumant aerem in cavitates suas arteriæ *(uti vulgo dicunt)* et in systole, per eosdem poros carnis et cutis, fuligines emittant; nec non, medio tempore inter systolen et diastolen aerem contineant; et quovis tempore aut aerem, ant spiritns. aut fuligines; quid itaque respondeant Galeno, qui librum scripsit, natura sanguinem contineri in arteriis et nihil præter sanguinem; nimirum neque spiritus, neque aerem: sicut ab experimentis et rationibus, in eodem libro, facile colligere licet." *DeMotu Cordis Proœmium*, p. 19, G. Harveii op om. Edit. 4to Lond. Col. 1765. Again he says—

"Et si cum in systole, tum in diastole, aerem arteriæ accipiunt et reddunt, uti pulmones in respiratione; cur non et hoc faciunt inflicto per arteriotomiam vulnere Sectione tracheæ, per vulnus aerem ingredi, regredi, duobus contrariis motibus palam est: secta vero arteria, statim uno continuo motu sanguinem vi protrudi, et non aerem vel ingredi vel regredi manifestum est." Op. cit. loc. cit. See also the curious pathological reasoning of the great Tulpius whose work, quoted p. 65 was first published in 1641.

But to return to the discovery of the circulation. In addition to other very important facts, clearly stated in the works of Galen, such as that the heart is the sole cause of the pulse, that the arteries are filled during their diastole; that there is anastomosis or communication of arteries with veins,[§] &c., Harvey had become acquainted also, with the discovery of the pulmonary circulation by Columbus, and of the valves of the veins, (not their use) by Hyeronymus Fabricius ab aquapendente. By observing the effects of pressure upon the superficial veins, **Harvey** at length discovered the use of the valves themselves; and then with the comprehensive grasp of a powerful mind, he arranged his facts, combining all these discoveries into one harmonious system, and proved that the blood *is returned back again by the veins to the heart*, in other words, its circulation. "As this discovery was entirely owing to our great countryman, so he has explained it with all the clearness imaginable, and though much has been since written upon that subject, I may venture to say his own book is the shortest, the plainest and the most convincing of any."[*]

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[*] "In sinistra autem parte spiritus ventriculum natura molita est, quemadmodum in dextra sanguinis." *Theophili* Corp. Hum. Fabr. iii. Cap. 6 Edit. Greenhill Oxon. 1842.

[†] "Quin probe scio me olim cuidam permississe, ut quia cor vehementer palpitans e digitis ejus exiliebat, fabri forcipe ipsum comprehenderet. Et neque tunc tame animal neqe quantum ad sensum, neqe quantum ad incitationis motum attinet, ulla lesione afficiebatur: sed magna uoce clamabat, et sine ullo impedimento respirabat et omnia membra uchementer movebat. Solus enim arteriarum motus ita intercepto corde offenditur. nihilqe aliud animal patitur: sed, quoad vixerit, et membra omnia agitat et respirat. At, si cerebrum ita co'pressum sit omnia e contraria eueniunt, pulsant quidem arteriæ naturalem in modum simul cum corde: sed nullum membrum movetur: et animal neque respirat neque uocem emittit." *Gal. de Hippoc. et Platon decretis* Lib. i. *Cap.* 6. Again what reasoning more conclusive than this?

"Igitur, si ad uentre'cordis uulnus, aliqu, penetrauerit, protinus magno cum sanguinis fluore hominem mori necesse est: idqe precipue, si sinistræ partis ueuter fuerit uulneratus. Si uero non ad uentrem usqe pertingat, sed in cordis substantia consistat uulnus, ex ita affectis aliqui non solum ea die, qua uulnerata fuerunt, sed sequenti quoque nocte uivere potuerunt: qui inflammationis ratione extincti sunt. Atque etiam ii, quamdiu uixerunt, mentis compotes inuenti sunt: unde euidens tibi testimonium sumere potestea secta, quæ negat rationale animæ uim in corde consistere." *Galeni op. om. de locis affectis*, lib. v. cap. 2. Edit. Fol. Basil 1561.

[‡] "Quocirca cum ambigu't, quo modo spiritus in totum corpus a corde feratur, si plene sanguinis arteriæ sint, difficile non est ejusmodi dubitationem soluere, et dicere non ferri, sed trahi spiritum in arterias, nec a corde solo, sed undequaque, sicut Herophilo placet, et ante Herophilum, Praxagoræ, Philotimo, Diocli, Plistonico, Hippocrati, et aliis sex centis, uim tamen quæ arterias extendit; a corde ceu fonte quodam manare, a nobis est in aliis libris explicatum." *Gal. an sanguis in arteriis*, lib. cap. 8.

[§] "Porro orificiorum arteriarum ad uenas apertiones non sine causa neque frustra parauit natura, (*a true prophet*) sed ut respirationis ac pulsuum utilitas non cordi soli atque arteriis, sed cum eis uenis etiam distribueretur" (well may it be said that Galen had made a very near approach to the Harveian theory"). *Gal. de usu part, corp. hum, lib. vi. cap.* 17.

In announcing a discovery, now so universally acknowledged as of the highest value, **Harvey**, with the prophetic glance of true genius, foresaw its beneficent results upon the whole range of medical science, and makes an especial mention of its application to pathology.[†] In order to estimate this, we have but to look back at the way in which learned men, and acute observers, reasoned upon diseases of the heart and great vessels so late as 1670. For we find the celebrated **Tülpius** explaining, agreeably to the Greek physiology, the effect of a polypus at the valves of the aorta (of which he has given an excellent plate) as preventing the accurate closure of the valves afer the egress of the vital spirit ![‡]—But the ancients, whose ideas of the circulation were so erroneous and so confused (the illustratious **Galen** alone excepted), had no certain knowledge of diseases of the heart. The Egyptions seem to have had some notion of atrophy of the heart, as a casue of death from old age.[§] **Hippocrates** says the heart has no disease (*nullus morbus in corde oboritur*).[‖] **Galen** whose penetrating mind as in physiology, so also in pathology, was most in advance, conjectured that palpitations were sometimes occasioned by the heart's moving in a fluid, nor should it be thought wonderful he says, if it were to be thus embarrassed in its motions.

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[*] Freind. Hist. Phys. Lond. 1726, vol. i. p. 235.

[†] "Denique in omni parte medicinæ, physiologica, pathologica, semiotica, therapeutica, cum quot problemata determinari possint ex hac data veritate et luce, quanta dubia solvi, aut quot obscura dilucidari, animo mecum reputo; campum invenio spatiosissimum, ubi longius percurrere et latius expatiari adeo possim, ut non solum in volumen excresceret, præter institutum meum, hoc opus; sed mihi forsan vita ad finem faciendum deficeret." *Op. Cit.* (*Harveii*) *Cap.* xvi. p. 75.

[‡] Sed ad polypum ut revertar constabat is, ex albâ, ac concretâ pituitâ, inclusâ membraneo involucro: & inhærens suis radicibus, carneis cordis fibris, assurgebat bifido trunco, obturatum non minùs arteriam aortam, quam venosam. Quarum nobilissimarum viarum obstacula impedimento fuêre: ne deinceps vel aërem liberè attraheret; vel fuligines debitè expelleret cor. Nedum exactè se clauderent valvulæ, post egressum spiritus vitalis. Cui tamen usui, illas ibidem loci destinavit sollicita natura.

Unde factum, ut partim, ob exclusum aërem; partim verò ob retentas fuligines; & spiritus, plus æquo, dissipatos· infirmaretur, usque eo, cordis robur: ut nequiverit ampliùs suum officium facere: multò minùs spiritus, vitales (ut par erat) quibuscunque partibus impartiri. Quorum calore ac fotu ubi carendum fuit: refrixit inde confestim corpus: emarcuit animus: & torpuit tam vehementer cerebrum: ut tandem perierit à gravissimâ apoplexiâ. N. **Tulpii** *Obs. Med. Lib. I. Cap.* xxvii *p*, 55 *Lugduni*. Batav. 1716.

[§] I state this upon the authority of **Sprengel**, who says that they believed, that the heart increased annually two drams up to the age of fifty, and then decreased in the same ratio, till it naturally caused death; he quotes, *Gell.* noct attic. lib. x. c.10 *Macrob.* Saturn lib. vii. c. 13 p. 438.

[‖] "Cor solidum est ac densum, ut ab humore non egrotet, et propterea nullus morbus in corde oboritur." *Hippocrates, lib.* I. iii. *de morbis*. Vincente edit. 12° Lugduni 1564.

He had often observed an urine-like fluid in the pericardiac cavities of animals, he had moreover observed an hydatid in the pericardium of an ape, and a scirrous tumour in the heart of a cock, whence he concluded, that it was not unlikely, that man also might suffer from similar affections. He goes on to say, that he had known gladiators die, from cardiac syncope, the consequence of *inflammation of the heart*, and even proceeds to state, that whilst inflammation is merely confined to the heart's investing covering, it is of little consequence, but that it may run on to inflammation of the heart itself."[*]

Thus carditis, pericarditis, and the circumstance so important of one passing into the other, were known to this illustrious reformer, or rather founder of rational Physic ; and upon this very principle of inflammation we are now enabled to account for nearly all the structural changes met with in the heart in this country. Thus it is only as science advances that this great man becomes fully understood. The great Morgagni had his attention particularly called to effusions in the pericardium, [†] he quotes with pleasure the observations of Galen upon that point. "The venerable Senac whilst shewing the importance of such a pathological state, acknowledges that inflammation of the heart had been known to Galen[‡] as proved in this very passage which he quotes. Bouillaud and Andral *might* have acknowledged, that the important fact, of inflammation of the pericardium being transmitted to the heart was alike known to Galen, as seen by the passage which I have cited.

But to return to the preparations in our museum, I am convinced that nearly all the specimens of structural changes described by me, as occurring in the heart itself and great vessels, whether derived from Europeans or from natives of India, have had their origin in inflammation. In many of them the phlogistic action has commenced in the pericardium ; and not merely by consent of parts, as Galen conjectured, but by contiguity of parts ; of the two serous membranes endo and pericardia in the auricles, the action has passed from the outside to the inside of the heart, effusions of lymph or of albumen have taken place ; sometimes small, such as granulations, and vegetations, about the valves ; sometimes spread out as false membranes, lining the whole of a cavity, or agglutinating the valves ; and sometimes accumulated in masses as polypi ; which remaining long have become completely organized, and even lined with a membrane, continuous with the endo-cardiac lining of the heart.

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[*] "Neq., n ; mirum uideri debet tantam humoris multitudine', cumulari aliqn' in ambiente cor tunica, ut ipsum, ne attollatur impedire possit. Quippe in animalibus dissectis uidimus plærunq'. plurimum humoris uriniæ speciem referentis, in eo, qui ipsum inuoluit, panniculo conteneri. Etenim simia quædam, quu. emaciari indies euideretur, eam .... post mortem uero reliquis corporis partibus omnibus illœsis, inuentus est in ambiente cor tunica tumor præter natura, humorem in se continens, qualem pustulœ (Greci hydatidas uocant) emittere solent. Atq in gallo quoq. uidimus aliq. cordis tunicam hujus modi scirrhoso tumore affectam.'.................. Infla'mato aut' manifeste corde gladiatores uidimus, haud aliter quam q. cardiaca sincopa, pereunt, obiisse.......Porrò panniculus cor ambiens, quomodo-cunq' affectus sit, inter ignobiles partes reputatur, *nisi quando ipso inflammatione infestato dispositio per consensum ad cor transcurrat.*" *Galeni Perg.* op. om. *de locis affectis*, lib. v. cap. 2, fol. edit. Basil 1561.

[†] Morgagni, *Book* ii. *Let* xvi, art 20,4to trans. Alexander. 1769. Lond.

[‡] Senac. *Traite de la struct. du cœur*, tom. ii. liv vi, cap. iv. p. 375 4to edit. Paris 1774.

But who amongst us, have been led to think, that carditis is a common disease in India?

Yet its frequent occurrence I believe to be a prominent feature in the general pathology of the country, and one hitherto most unaccountably overlooked. That cardiac disease must be very prevalent among both natives and Europeans, we can hardly doubt, when it is considered within how short a space of time the whole of these specimens have been collected that very many of them were obtained accidentally, from bodies of natives brought to the College rooms for dissection; whilst amongst Europeans the cases forwarded by the Medical Board, or derived from the College Hospitals, still further prove the fact, as well as my own experience, as member for many years of the General Invaliding Committee for Bengal troops. The point I consider to be well deserving of serious attention, and full of practical importance, for I have seen more cases of acute inflammation of the heart, among natives of India during the short time I have been a teacher of anatomy in the Medical College of Bengal, than ever I met with in England; where for some time, all the bodies of patients dying in one of the metropolitan hospitals, were examined by myself. Again Dr. E. Goodeve reports to the Medical Board of Bengal, that the Cawnpore Dispensary presented within 12 months, every form of pulmonary disease, *and many of the diseases of the heart.* These patients were all natives, most likely of the upper provinces of Hindostan. But I believe that the importance of the subject requires still more careful investigation.

Some of my brethren in India to whom I have shewn these specimens, cannot bring themselves to believe in the existence of organized polypi, or membranes in the heart at all; and the disclaimer entered by Dr. Campbell, and published in the India Journal of Medical and Physical Science for December 1834, has not been met with, that I know of, by any counter statement. Yet the case adduced by Dr. Campbell, to disprove Dr. Esdaile's account, is absolutely one of the best marked cases of organized polypi, I ever met with, and it is difficult to conceive, how the narrator could come to the conclusion which he has thus recorded, that "it is adverse to possibility to allow that the deposition of an organized substance (fat and polypi are both organized,) can take place in such an agitated whirlpool as the ventricles of a living heart, and that too, to the extent of completely filling them." I think Dr. Campbell has himself supplied immediately afterwards, the explanation of such productions most consonant to reason, when he adds, "such formations are composed of coagulable (or coagulated) lymph, the same being deposited .... when the living principle is so far weakened, as to admit of the blood to separate into its component parts."[*] The precise circumstances under which they are formed in cholera.[†] The case is briefly this. A Sergeant who had been 30 years in India, "subject for many years to inordinate action of the heart, accompanied by difficulty of breathing and great prostration, of strength "of very intemperate habits," died of dysentery and liver abscess. "On dividing the ventricles, the left one was found nearly filled by a yellowish fatty looking substance, semi-transparent and somewhat elastic; processes of the mass lay entangled in the muscular bands of the cavity, and in the arch of the aorta, as well as two inches of its descending portion, with about an equal space of the arteria innominata; the left cephalic, and brachial were *completely filled* by a continuation of the same substance. *The right ventricle had a thin layer of a similar substance lining its cavity*; shoots from which extended for about an inch into the pulmonary artery." Its analogy with the specimen No. 750, p. 17, is very remarkable; the immediate cause of death the same, abscess in the liver.

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[*] See also India Journal Medical Science, February, 1835 (45.)

[†] "The same result may also follow the remora or stasis of blood in the right auricle and vena cava, consequent upon extreme depression of the powers of life, or upon prolonged syncope, &c.; the concretion thus formed preventing the restoration of the heart's contractions. Under such circumstances, this variety of concretion may be the proximate cause of death, although formed so shortly before, especially in diseases of the heart and during extreme vital prostration." Copland Dict. Pract. Med. p. 22.

It is notorious that wounds of the heart heal by adhesion;* foreign substances in the heart are coated by coagulable lymph†; valves broken, have an artificial substitute formed of lymph; vegetations upon valves are formed from coagulable lymph, even now valves are formed in place of those which are destroyed;‡ what therefore can resist these, nature's proofs, of the possibility of effused lymph, adhering where it is effused, even in this agitated whirlpool the heart. It may even increase there

"Mobilitate viget, viresque adquirit eundo;"—*Virg.*

But as the fashion of denying that *organized* polypi or masses of fibrine can be produced in the heart, is not limited to INDIA, I adduce three observations, each of which would alone suffice to prove it, besides the one quoted p. 52 from M. BOUILLAUD. The first is recorded in the case by DR. A. WOOD, p. 50, a "polypus is fatty *firm*, vessels *visible on its surface, and seen distributed also through it.*" In the second case of a Hindoo, No. 868, reported page 28, and 31, I have myself added the remark, that the serous membrane lining the polypus, was covered with an honeycomb exudation, of recently effused lymph, like that seen on the pericardiac surface. The third is also a specimen taken from a strong athletic, healthy-looking Hindoo, of about 40 years of age, brought from the Ghaut to the College dissection rooms. It shews, what our dissecting rooms in India often show, *the*

"When they are of considerable size, or of long duration, they appear to have compressed the fleshy columns in which they are entangled, and ultimately they become adherent, in one or more points, to the internal surface of the heart, in more immediate contact with them. The adhesion is manifestly owing to the irritation they have occasioned in this surface, and at these points, and to the consequent exudation of lymph by which they become agglutinated, and more or less closely adherent." Op. cit. p. 221.

[*] See cases of wounds of the heart recorded by BARON LARREY, *Clinique Chirurgicale*, tom ii, p 300, Paris 1829.

[†] "A boy aged 10" shot himself with a gun made out of the handle of a telescope toasting fork—"died after an interval of" five weeks and two days, from the time the accident occurred, "was examined P. M." when an incision was made into the heart, so as to expose the right auricle and ventricle, the stick which the boy had used as the breech of the gun, we were astonished to find, lodged in that ventricle, the one end of it pressing against the extreme part of the ventricle, near the apex of the heart, and forcing itself between the *columnæ* carnæ and the internal surface of the heart, the other end resting upon the auriculo-ventricular valve, and tearing part of its delicate structure, and *being itself incrusted with a thick coagulum as large as a walnut* Lond. Med. Gaz. June 1834.

[‡] See No. 869, p. 27—also case related p. 33.

march of disease when uninfluenced by treatment.[*] It is seen that all the thoracic organs were vehemently inflamed, from the irritation of tubercular lungs. The heart itself being inflamed to a greater extent, than in any case I have ever seen recorded. The case is as follows.

No. 981. The whole of the pericardium is covered internally with loose fibrinous exudations, upon both the cardiac and pericardiac portion of the serous membrane: in one place it has accumulated to the thickness of half a crown. The right auricular appendix is obliterated, the right auricle is lined outside, by flocculent lymph; in a greater abundance, however, inside the auricle; there it partially lines the cavity, and is thickest in the interstices of the musculi pectinati. Holding it against the light, it is seen that the two serous membranes are in contact, here the auricular appendix is filled up and contracted. At the root of the superior cava, a membranous layer is seen adhering inside, and another at the root of the inferior cava. The fibrine has accumulated also as a clot in the auriculo-ventricular opening. It has invested as a thin layer of false membrane, the upper and the under surfaces of the tricuspid valve, and is seen prolonged upon the carneæ columnæ, and inextricably involving the cords by thin cobweb-like films. In the pulmonary artery, about half an inch above the semilunar valves, is a sort of additional valve, formed of fibrine attached below, loose above, another similar formation is seen in the arch of the aorta.

On the left side, of the heart, we see the appendix auriculæ coated outside with fibrinous effusion; inside, the cavity is obliterated, from the production of fibrine within it. Fibrinous exudations are seen attached to various parts of the auricular cavity, and a thin lamella, is produced through the auriculo-ventricular opening, covering each side of the mitral valve, and coating the columns and cords. The substance of the heart resembles boiled cow's udder, a metamorphosis which, it seems to me, it often undergoes in acute inflammation. The plastic lymph here universally effused, is quite different from the transparent, jelly-like, rounded coagula, seen frequently in Europe. This is not transparent, not yellow, when recent; but reddish, and has sharp edges when impressed upon angular forms.

The further report of this case by my intelligent pupil Tameez Khan, shows that this inflammation was propagated by the excessive irritation of suppurating tubercles in the lungs, producing pleuro-pneumonia.

Thorax. The pleura costalis was adherent, by recent cellular bands, to the pleura pulmonalis, and these were observed more numerous on the left, than on the right side. Effusion of a quantity of yellowish serum in the cavity of chest. The costal pleura in many places, on both sides, was covered with thick layers of plastic lymph. The upper and anterior portion of the right side of the lung was in firm union with the sterno-clavicular articulation, and on this being separated by a knife, that part of the lung was found extremely hard, and communicated a gritty feel, upon being cut, and was found studded with crude tubercles. Immediately below this point, the surface of the lung was extremely soft, and had a fluctuating feel, and this on being divided, was seen containing about an ounce, or perhaps more, of purulent and caseous matter, the result of softened and suppurated tubercles. On these being removed, the sides of the vomica had a rugose and secreting look. In many other places the lungs were studded with tubercles in their various stages. The outer surface of the pericardium was in a very inflamed state; on both sides adherent to the lungs; the contiguous surface of both organs highly inflamed.

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[*] This is No. 1 of the " *Cogitanda—excogitanda agenda*" que, of Dr. Forbes—all of them (12) worthy of serious reflection.

Abdominal Organs. The intestines had an inflammatory blush, the peritoneum, with its folds and reflections, was highly vascular, serous effusion in the abdominal cavity. Liver (No. 982,) enormously enlarged, and in a highly engorged and congested state. Its concave surface was adherent to the diaphragm. The gall-bladder was full, and covered all round with thick plastic lymph, the bile within was thick and very dark, and there were four small mulberry-looking, black calculi, the presence of which, gave rise to the inflammation of the cyst itself. The spleen was very small. The kidneys seemed to be in some measure longer, and highly gorged and congested, the ureters natural, urinary bladder contracted, diminished, and void of urine. All the vessels of the abdomen were full of blood.

ACUTE ENDO-CARDITIS.

Having shewn that coagula formed in the heart, there become organized, and fixed by adhesive inflammation, as permanently as occurs elsewhere, I now proceed to comment upon the ultimate result of this, and other forms of inflammation, *in organic disease of the heart;* yet it should not be forgotten that endo-carditis, whether running on to effusion of lymph or not, is rarely a simple disease, but is, on the contrary, most frequently associated with other inflammations, as pleurisy, pneumonia, phrenitis, phthisis, hepatitis, acute dysentery, as well as with fever and cholera. Indeed this series of preparations, is seen to *illustrate especially, the association of inflammation of the internal lining membrane of the heart* (*endo-carditis*) *with other phlegmasiæ.*

No. 620 offers an additional example of the fact, that organized lymph can be thrown out, without being washed off again by the blood, that it may remain and become organized, as fully proved by the false membrane, still soft and flocculent, adhering to, and lining the right ventricle. In the recent state, red vessels were seen in these false membranes. The acute carditis, which was present during life, is apparent in the reddened, and softened state of the divided muscular substance. The opacity of the endocardium, the thickening, and reddening of the tricuspid valve, the false membrane prolonged upon the chordæ tendiniæ, the prolongation of fibrine as a coagulum into the pulmonary artery, and the impression upon it of the semilunar valves, form strong points of analogy with other preparations I am about to notice. It is worthy of remark also, that the aorta, in its lining membrane, bears evidence of inflammation, and of ulceration. The man, an European, *died of fever,* with carditis supervening.

In the preparation No. 750, taken from a sailor, who *died of a large abscess in the liver,* with adhesion to the diaphragm, the red state of the aortic membrane, red spots with opacities in the centre, some mere opaline nebulæ, some ossific, especially at the attachment of the valves, the inflamed, red, thickened, puckered state of these valves, the organized adherent coagulum of the mitral valve, the opacity of the pericardium and endocardium generally, the organized coagulum in the right ventricle, prolonged into the pulmonary artery, the inflamed thickened tricuspid valve, with fibrinous coagula dependent from it ;—all show continuous inflammation of the two membranes investing the heart the endo-pericardia.

The same actions have gone on in No. 774, but confined more to the endocardium. The effused fibrine has united by adhesion, the two edges of the tricuspid valve for two-thirds of its extent, prolonging a coagulum into the right auricle on one side, and into the pulmonary artery on the other. There is great thickening and opacity of the membrane generally, with opacity and thickening of the lining membrane of the aorta. *This preparation therefore leads us to associate with inflammations of the heart, the structural changes observed in the valves and great arteries.* The man *died of inflammation of the lungs.*

In the large hypertrophied heart, No. 775, from a man of H. M. 44th, the same inflammatory appearances are seen, the same adhesion of the tricuspid valve, same organized clot, its auricular attachment almost inverting the appendix, the same thickened puckered valves, but more evidence of acute inflammation of the pericardium, as well as endocardium, in the right auricle;—most strongly marked, where the auricle is most transparent, and the membranes in most intimate contact :—*almost proving the propagation of inflammatory action from the one to the other.* This man *died of inflammation of the brain.*

Of the inflammatory origin of these changes we have another proof in the preparation, No. 565. Here the man was attacked with *acute dysentery.* Inflammation of the pericardium came on—acute and violent, it resulted in universal adhesion ; the muscular structure participating in the inflammation became softened, and easily lacerable. The lining membrane in the right auricle was thickened, intensely red, the valves puckered up, thickened, especially the tricuspid and the pulmonary valves, and also the lining membrane of the pulmonary artery, and of the venæ cavæ ; and that also of the left side of the heart but in a less degree, whilst the aorta itself, is a mass of disease at the arch.

So also in No. 558, taken from a woman, European, *who died of gastritis, supervening upon cholera,* nothing could remove the oppression of the heart, and her own conviction that she would die. The large coagula here, were probably formed during the time she remained almost pulseless, and were organized during the subsequent reaction and inflammation. A rough surface whence they were torn, is seen in the ventricle, whilst their size and attachments rendered them necessarily fatal. See Case 558, p. 296. An instance is recorded p. 61 of arteritis continuing throughout an attack of cholera, see No. 1314.

CHRONIC ENDO-CARDITIS.

We can now turn with interest to No. 640, *the chronic form of endo-carditis,* and observe the serious alterations it produces in the capacity of the heart, and in its various cavities, leading to fatal derangements in the circulation. But we can understand, that *the first step was an attack of endo-carditis, with effusion of lymph,* then contraction of the auriculo-ventricular opening, then hypertrophy of the left ventricle, then dilatation of the right auricle, then hypertrophy and dilatation of the right ventricle, with the various dropsical effusions already referred to.* But a more striking alteration is seen in the enormous dilatations, shewn in No. 577, where the right ventricle would easily contain a closed *fist* ; or the remarkable contraction it has undergone, No. 663, where it would not hold a good-sized nutmeg.

Again, No. 1317 is a remarkable instance of the disastrous effects of chronic endo-carditis terminating at the early age of fifteen years, in fatal organic disease of the heart. The patient's history is given at page 57. She was a Bengallee, had been purchased from slavery, and had become a Christian. The serious impediments to the general circulation, had produced general anasarca and various dropsical effusions, the partial paralysis was probably owing to effusion of serum pressing upon the spinal cord. (See a case of convulsion and death, p. 24). The large coagulum in the right auricle might increase the anasarca of the right side, and the difficulty of the pulmonary circulation, had induced bronchitis, of which she died.

The heart is about twice its usual size in a Bengallee girl ; its shape so altered as to indicate extensive disease. There is so great a contraction of the left auriculo-ventricular opening, that it would barely admit a swan quill. This seems to have been the effect of adhesion of the edges of the mitral valve, which has subsequently become so thick and rigid as to resemble white leather, it cannot recede to the ventricular wall, and looks like a leather partition. The ventricle below is hypertrophiod, aortic valves are thick and rigid. The auricle above largely dilated, thick and fleshy, the auricular appendix dilated like an aneurismal sac, communicating by a rounded orifice with the auricle. The right ventricle has a singular form from the excessive dilatation of the pulmonary meatus, leaving the fleshy columns of the tricuspid valve standing out completely isolated, between the right ventricle and this larger compartment,or *third* ventricle ; pulmonic valves healthy ; the membranous portion of the tricuspid valve is so altered and thickened, that it resembles a leather partition with a circular hole at the bottom. The auricle above greatly dilated, the endocardium so altered as to resemble a lining of white leather. The musculi pectinati remarkably strong, thick, and fleshy. The auricle contained a fatty looking coagulum, partly adherent, and lined by membrane ; to the presence of which may be attributed the anasarca of the right side, predominating over that of the left. The pericardiac membrane of the right auricle was studded outside with granular and lenticular depositions of fibrine.

What a singular fact to find organic disease of so formidable a character in a young girl of fifteen ! She had, previously to the dropsy, never suffered excepting from fever, most likely, symptomatic of endo-carditis, which uncontrolled by art, held on its secret and deadly course, at length stopping up the fountain of life itself.

> "hæret lateri lethalis arundo."
>
> *Æneid* IV. v. 74.

I have thus far viewed this disease as a whole, but in the beautiful preparation, No. 118, there has been rupture of a valve, lymph thrown out, thickening of the other valves, and also of the opening of the ventricle into the aorta from the consequent inflammation, flocculent lymph is still seen adhering. Again No. 242, shows inflammation and cicatrization above the aortic valves. In No. 1003, the valves are seen cemented together. In No. 869 some of the aortic valves having been destroyed, a new formation by fibrinous exudation has taken place above, other depositions are seen upon the mitral valve. A nearly similar instance is seen in No. 1021. In Dr. Elliot's case, p. 33, a product of fibrinous effusion is said to have performed the office of a valve.

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* See Corvisart, "Maladies du Cœur," p. 96, for order of dilatation ("aneurism passif du cœur, ou avec amincissement."

Order of succession in which the several parts of the heart become hypertrophous. Hope Enyclop. Prac. Med. vol. ii. p. 538.

ARTERITIS.

When speaking of aneurism, p. 12, I observed that it is rarely a local disease, but is preceded by general disease of the serous coat of the artery, or more probably, of the one external to it, denominated the fenestrated or striated coat.* Now we see that in the early stages this disease is inflammation; for instance endocarditis may be continued into aortitis, vice or versa, and both may be still further diffused. Besides the remarkable instance No. 247, referred to, p. 2, we see the intermediate grade, supplied in the case described by Tameez Khan, p. 61. Whilst the last stage towards the formation of aneurism, namely ulceration, is seen in the preparation sent up from Singapore by Dr. Oxley, No. 1333, shewing circumscribed ulceration, perforating all the coats, about the transverse part of the arch of the aorta. Here then, in these three last preparations, we have illustrations of every stage of arteritis; we have inflammation, shewn by deposition beneath the aortic serous coat of large lenticular masses of yellow matter, large as a bean, we see some have ulcerated, some have healed, some have extended only through the elastic coat, again some have gone through all the coats; forming as in this last case, true aneurism. These views are in strict conformity with those of Professor Tiedemann, the greatest, and perhaps latest, living authority upon this subject, given in the London Medico-Chirurgical Review, Ap. 1846.

"Often with arteritis is associated simple inflammation of the heart, viz. of its inner membrane, a genuine endocarditis. The inner membrane is then more or less reddened, swelled, thickened, detached, and covered with coagulable lymph, which often adheres closely; and such cases of exudation of coagulable lymph from the inner surface of the heart, and attached to the *laciniæ* of the valves, were observed by Baillie, Burns, Kreysig, Laennec, Bouillaud, Hope, and other observers. Endocarditis is often connected with inflammation of the aorta and pulmonary artery. And occasionally with arteritis is associated inflammation of the veins. The inner coat of these vessels is then of a bright red; thickened, softened, and covered with lymph; and sometimes the veins are agglutinated and closed.

He holds the whitish specks and eminences on the inner coat of arteries, which constantly precede the formation of earthy concretions or bony patches, in whatever period of life they may take place, as albuminous exudations, and products of a morbid irritative condition of the arterial walls. This consists in inflammation mostly of the slow or chronic character, but sometimes also in acute inflammation; and then follow simultaneously with the inflammation an effusion of plastic lymph from the inner coat of the arteries. On the other hand, he regards the deposits of calcareous scales in the albuminous exudation which ensues at a much later period, as no more than an effect of an irritative state, and an inflammatory process. It takes place according to a law observed in all the organs and textures of the human body, that in parts and formations, as well as in old inflammatory exudations, when they lose their vital properties and living characters, calcareous matter is secreted from the blood in these textures, which as it were become calcarized or penetrated with earthy matter. In this way these parts are gradually converted into earthy and stony matter, which are erroneously considered to be true bone. But from these they differ, as has been formerly shewn, both in mode of origin and formation, and in texture, and have with the same nothing in common, except the penetration with earthy matter, by which an apparent similitude to bony matter is produced.

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* Anatomist's Vade-Mecum by Erasmus Wilson, 3d Edition, London, 1845, p. 294.

This inflammation, he allows, is very often of rheumatic or gouty character, and most usually takes place in those who live freely on animal food, take much wine or other strong liquors, and otherwise live intemperately and luxuriously."

"At the spots where atheromatous matter has been formed around earthy concretions in arteries, the author always found the fibrous tunic softened, detached, or completely dissolved and destroyed, so that it was in contact with the inner layer of the cellular coat of the arteries. In general he saw the inner smooth arterial coat destroyed at the edges of the earthy scales, as if consumed or eroded. Hence the blood comes in contact with the earthy concretions, and is pressed into the cavity which contained the atheromatous matter. By the process of softening and solution which the atheromatous matter caused in the arterial tunics, the earthy concretions were constantly more detached from the arterial walls; and sometimes they were separated altogether, and projected into the canal, where they were carried away by the current of blood.

"The atheromatous matter, in short, he concludes, in considering with Hodgson and Craigie as a sort of purulent matter, and the result of a genuine suppurating and ulcerating process; and in proof of the correctness of this inference he adduces various examples in which ulceration had been observed to have taken place in the arterial tunics from the presence of earthy and atheromatous matter. *Ulcers indeed of this kind give the frequent disposition to the formation of partial or circumscribed aneurism.*"

Of this we have many instances in the museum. No. 247, already referred to, shews ulceration of the internal arterial tunic so extensive, just above the aortic valve, that it looks like a piece of ragged dysenteric intestine, a small pouch of the external coat has projected, forming incipient aneurism. The whole of the vessel greatly thickened, in this situation by layers of effused lymph. No. 254 shews the destruction complete, the aneurism burst. No. 256 shews some cysts forming, some formed, some burst, the calcarized masses projecting in some places through the inner coat, not yet washed away, nor their place distended out by blood. Nos. 677 and 253 shew the various stages of atheromatous degeneration; in some places the inner membrane is entire over the depositions, in some places ulcerated away. No. 764 shews remarkable arctation of the carotid and subclavian, after arteritis, with dilatation of the aortic arch. In this case there can be no doubt of the arctation of the arteries arising from the aortic arch, being the direct consequence of contraction of their various tissues, after acute inflammation of the arch; during which they had been penetrated with effused lymph. Baron Larrey gives a striking example of such a result in the very interesting case of Alexandrine W. and it is clear by facts carefully noted during life, that she had considerable hypertrophy of the heart, and dilatation of the aortic arch, whilst the great branches given off from it, were also largely dilated. It is also plainly stated, that the heart was found after death reduced to the size of an infant's, the great dilated vessels, and bulging of the chest, reduced also to a normal condition ; undoubtedly a great triumph of the Baron's revulsive treatment by the moxa, &c.* Again, No. 756 shews the beginning of this atheromatous deposit in connexion with acute arteritis and endocarditis. Another, No. 1044, with endo-pericarditis, even more beautifully shown in No. 774. The preparation No. 620, shews a more advanced stage of this morbid deposition in connexion with inflammation of the heart generally :—No. 871 in connexion with aneurism in the heart. But all these extraordinary specimens are surpassed by No. 822 ;—where from the aortic valves to the aneurismal sac in the abdomen, the whole vessel is thickened, ulcerated, and has just the appearance of an intestine, affected with dysentery, excepting only the occurrence of several aneurismal pouches or dilatations in its course. Lastly, there is a specimen lately brought from the College hospital, the patient, a Hindoo, had a variety of treatment having no reference to aneurism, (for as in the case related, p. 13, the disease was not suspected ;) indeed in order to relieve pain in the loins it was his practice to get his mother to stand upon him and press him there with her feet. Having been a short time in hospital, he died, by the aneurism bursting through the diaphragm. In the preparation a large sac is seen below the diaphragm, projecting to the left side ; with a large round orifice leading directly backwards, to the spinal column, of which the intervertebral substance is seen projecting forwards, whilst the bodies of the vertebræ have been absorbed, and allowed the blood to distend a large sac, extending from the diaphragm to the iliac fossa and compressing the termination of the aorta and the common iliacs.—*But allaround the aneurismal opening, the artery is seen internally thickened, inflamed, ulcerated, wrinkled, with atheromatous deposits under the internal membrane, and having loose fibrinous effusion upon it.*

In No. 658 the innominata, the carotid, and the termination of the thoracic duct are closed by coagula inside. In No. 534 the innominata closed naturally by agglutination, and adhesive inflammation from pressure of an aneurism, but leaving above a passage by which the blood went from the carotid into the subclavian (see p. 14) before the application of the ligature upon the carotid. No. 743 shews arctation and obstruction of the thoracic descending aorta by pressure of the aneurismal cyst. In No. 620 we have arctation of the entrance to the innominata in connexion with cicatrized ulceration, dilatation and thickening of the whole calibre of the aortic arch ; and acute inflammation of the heart itself.

Arctation of the arteries may be congenital, as in the interesting case by my friend Dr. Wise related vol. viii Trans. Calcutta Med. Soc.

" A strong middle aged native of India, who while walking, suddenly fell down and expired." The aorta was found quite obliterated, and reduced to a cord like the ductus arteriosus, which indeed marked the place of constriction. It then became again its natural size receiving large arteries. The aorta was ruptured just above the valves.

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* Clinique Chirurgicale, Baron Larrey, Paris, 1829, Tom. iii. p. 238.

"Besides aneurisms, there may be formed in the neighbourhood of arteries other tumours, which may exert pressure and cause inflammation. Lymph is effused in their canals, and they are agglutinated and become obliterated." Of this we have two remarkable instances both taken from Hindoo women. No. 827, arctation of the thoracic descending aorta from pressure of bony tumour. No. 1018 (see p. 26), arctation, and partial closure of both external iliac arteries, from the pressure of tubercular matter. In this last case there was inflammation of the iliac veins also, and obliteration of the thoracic duct in the neck from the same cause. The deposition of tubercular matter upon the costal pleura, had produced great serous effusion. The heart was greatly atrophied. The following notes of these extensive tubercular depositions were drawn up by a distinguished student of the College, **Tameez Khan**.

EXTENSIVE TUBERCULAR DEPOSITIONS CAUSING ARCTATION OF ARTERIES AND ATROPHY OF THE HEART.

The following highly interesting morbid specimen has been taken from an old Native female (æt. 45 or 50) brought for dissection from the Police Hospital on the 31st day of December 1845. Whilst engaged in dissecting the relative situation of the vessels and nerves and other parts as they emerge from the heart, and the contiguous parts, for **Professor Webb's** demonstrations, my attention was attracted by a gangliform body, situated on the recurrent nerve of the right side, this was found afterward, to be a tubercular deposition in the substance of the nerve itself. The thoracic duct also was found by **Professor Webb** to divide into two branches, one of these is pressed upon and obliterated by a tubercular gland like that upon the nerve. There were nine pints of pale serum effused into the right side of the chest, and on the same side the pleura is seen to be highly inflamed, and studded in every part with small granular or tubercular depositions, and these when touched, communicate a gritty sensation to the ends of the fingers. The pulmonic lobes of the same side are covered with soft, delicate membranous layers of lymph, very slightly adhering to the pleuræ, from being very recent. In other respects the lungs are healthy, and possess a bluish black color. The heart atrophied, half its usual size, with opacity of the membrane lining the left cavities, pale and flabby, otherwise healthy. All the glands about the bronchial tubes and other places were filled with tubercular depositions.

A great portion of the spinal column, and the psoas muscles of each side, have apparently become converted into tubercular matter, the muscles looking at first like a fine plump muscle, but actually a mere membrane, filled with white tubercular matter, perfectly lardaceous in appearance, and the largest mass I ever witnessed of the kind. When it was about to pass under Paupart's ligament, the mass became narrower in front, owing to a large quantity passing backwards into the pelvis, and compressing the internal iliacs on each side, destroying the parts about the thyroid hole, upon both sides, the pelvis. The narrow front prolongation, was so knotted beneath the blue membrane, as to resemble strongly the valves of a greatly distended vein. The more so as it occupied the place of the iliac and femoral veins, which were so obstructed that it was difficult to get a probe through them. They were highly inflamed, and it was especially the case with the arteries, which were partly obliterated. The right external iliac is further obstructed with fibrine effused within it.

Thus it would seem that when arteritis is occasioned mechanically as in these two instances by the pressure of tumours, it has yet a great tendency to spread and diffuse itself.

" PROFESSOR TIEDEMANN, informs us that acute arteritis is particularly distinguished by great irritation in the vascular system. The heart beats violently, rapidly, and tumultuously ; its actions are manifest and audible and are at the same time represented by the patient as very distressing. (See case, p. 82).—The pulse is accelerated ; and all the superficial arteries, the carotids, the facial, and the radial throb violently, and present a sort of vibratory beating (see case at p. 60 and also p. 82).—The pulse is very hard and tense. In the course of the arteries the patients feel great heat, and more or less intense pain, aggravated by touch. The phenomena now mentioned in the vascular system are consequences and effects of inflammation of the arteries. In cases of more violent and more extensive arteritis, the pulse presents the symptom called the double beat, (*p. dicrotus.*)

" The most frequent occasional cause which produces inflammation of the vascular system in general, or of individual arteries, he considers to be sudden suppression of the cutaneous transpiration by violent chilling, (see case p. 59,) while the body is heated, and the motion of the blood quickened and forcible, from great muscular action, or the abuse of spirituous liquors, or both together (see case p. 82.)—The blood, he adds, is repelled, by the operation of the cold on the skin, from the cutaneous vessels, and flows into the capillaries of the irritated walls of the arteries. The cutaneous transpiration may be suppressed by keen winter's cold, draught of cold air, wetting with rain, the imprudent use of the cold bath, or cold bathing. These inferences he shows to be established by considering the circumstances of several of the cases recorded in the first part of the work, especially those by Thomson, Meli, Meckel and Hermann, Otto and Schlesinger. In some cases, even inflammation of the arteries of the lower extremities, and gangrene of the same, has followed sudden suppression of the cutaneous transpiration in walking with bare feet over a cold stone pavement."[*]

PERICARDITIS.

Lastly as pericarditis can be propagated inwards and induce endopericarditis, and[†] carditis, as well as arteritis it becomes an important point, of our enquiry into INDIAN PATHOLOGY to trace the frequency of this disease. Nos. 754, 259, 251, 663, 621, 868, 981, 1006, 819, 859, 252, 121, &c. are all instances of this lesion. Nor can we wonder at this, for what disease in INDIA, is more universally diffused over the country, than that of articular rheumatism,[*] and what sequence more common to it, than endocarditis and pericarditis, the former being now proved to be the most frequent of the two, as in the following," valuable statistical data derived from Dr. Latham's practice at St. Bartholomew's Hospital, shewing the intimate connexion between endocardial and pericardial inflammation on the one hand, and the existence of acute rheumatism on the other.

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[*] Edin. Med. Surg. Journ. No. CLXVII. Ap. 1846.

[†] L'histoire de l'endocardite et de la péricardite chroniques (mais surtout l'histoire de la première de ces maladies) se rattache par la plus intime des connexions à celle des maladies décrites par Corvisart et les disciples de son école sous le nom d' *affections organiques du cœur*, lesquelles, encore aujourd'hui, sont assez généralement désignées *in globo*, sous le nom vague et banal d'*anévrisme du cœur* par les uns, sous celui non moins vague et non moins banal d'*hypertrophie du cœur* par les autres, comme si la dilatation

"In the course of five years, from the beginning of 1836 to the end of 1840, there were admitted under our author's care, 136 cases of acute rheumatism. Of these, 75 occurred in males, and 61 in females. Of the 75 males, the heart was affected in 47 ; and of the 61 females in 43. Now in these 47 cases, the seat of the cardiac disease was as follows : in 30, the endocardium alone was affected ; in 3, the pericardium alone ; in 7, both membranes were inflamed ; and in the remaining 7 the exact seat of the disease was uncertain. Of the whole number of males, in whom the heart was thus variously affected, only 3 died ; and in these 3 cases, both the endocardium and the pericardium were affected. Of the 43 cases of rheumatic heart-complication in females, "the seat of disease was the endocardium alone in 33 ; the pericardium alone in 4 ; and both endocardium and pericardium in 4 ; and the exact seat of the cardiac disease was doubtful in 2. Of the whole number of females in whom the heart was thus variously affected none died."

"Here then we see that, in *two-thirds* of these cases of acute rheumatism, there was some affection or another (certainly of an inflammatory nature) of the heart. Before the publication of Bouillaud's Researches,[†] it was universally supposed that it was the pericardium that was generally affected. The fallacy of this opinion is abundantly shewn by the data which we have just now given. From them "it appears that endocarditis occurs nine times in acute rheumatism, for pericarditis once ; that simple endocarditis consti-

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des cavités ou l'hypertrophie des parois musculaires de cet organe constituaient l'élément unique ou même l'élément radical et fondamental de ces affections !"—BOUILLAUD Clinique medicale, p. 482. DR. COPLAND says,

Although this disease (pericarditis) may commence on either surface, it seldom runs its course in a simple form, or without extending to the other, or even to other structures. However this may be, it is indisputable that, in a very large proportion of cases of pericarditis, and especially in those which are chronic, more or less of the changes characterising, or resulting from, *internal carditis* are also observed, as well as many of those alterations which are yet to be considered.—Cop. Dict. vol. I ; p. 186.

[*] I have seen this in all the three presidencies, often as severe in character as in the following report by SHAMACHURN *DUTT*, sub-assistant surgeon, in charge of Jubbulpore dispensary—"Like ague, chronic rheumatism is a prevailing disease in this part of the country, and this is also attributable to some of the circumstances which relate to its climate as noticed above. It is a very intractable and lingering complaint, and often ends in disorganization of the joints in which it happens to be seated. It spares no age ; the young, the adult, and the old are equally subject to it. Children between 10 to 15 years of age have been brought to the Dispensary laboring under rheumatism. That species of paralytic rheumatism common in Dyab Burroghur, a Pergunnah in the District of Allahabad, the cases of which were brought to me for treatment while at that station, is very rare here."—*Reports Govt. Disp.* 1844 *p.* 114.

[†] The reader will find tolerably ample reviews of this gentleman's work on Diseases of the heart, and of his *Nouvelles Recherches sur le Rheumatisme articulaire aigu en general, et specialement sur la loi de coincidence de la Pericardite et de l' Endocardite avec cette maladie*, in the Numbers of this Journal for April and July, 1846. (Med. Chir. Rev. Lond.)

tutes more than two-thirds of all rheumatic cardiac affections, and simple pericarditis only one-thirteenth; and that pericarditis is more frequently found in combination with endocarditis than alone."*

Inflammation of the liver, especially its convex portion, frequently gives rise to pericarditis. A striking instance of this is seen in No. 859, in which there was an abscess in the epigastrium of an European, of a small size, which abscess being opened, gave exit to 40 ounces of matter. A catheter was introduced to ascertain its extent, and the side which was affected. It was found that *the abscess communicated with the cavity of the pericardium;* so that when a catheter was introduced, the pulsation of the heart pushed it aside. *Autopsy* shewed that there was an abscess of small size in the liver, which communicated with the cavity of the pericardium, and formed the external tumour in the epigastrium. There was found about a pint of matter in the left pleura. No. 1033 is another instance of an abscess opened instrumentally (in the neck), *being found to continue by a wide opening into the pericardium*—*See* DIVISION LUNGS, &c. GALEN has also related a case, the only one I know of, in which such an opening derived from an external abscess, *ultimately healed. De Anatom. Administ. lib.* vii. *cap.* 13, &c. and elsewhere.

Inflammatory affections of the spleen, may equally with those of the liver be propagated, through the diaphragm to the pericardium and heart. As in the following case of a boy, about six years old, who died under my charge in the Alipore Hospital, of splenic cachexia.

Autopsy.

General appearance.—Anasarca of the lower extremities, great emaciation of the upper. Once a pretty European boy, he is now mere skin and bone.

Head.—No blood found in dividing the calvarium, temporal muscle so pale and atrophied as to be scarcely distinguishable. General effusion underneath the arachnoid, which was opalescent in some places. Brain softened throughout, infiltrated with serum, making the mixture of white and grey matter very distinct, as it radiated from the ganglia of increase, especially the optic-thalami; little effusion in the ventricles. The spinal cord greatly compressed, and atrophied.

Chest.—Heart pale, of a pearly hue outside, and softened; right auricle distended with coagulated blood, thickening of tricuspid valve. Intercostal muscles pale and fishy. Lungs white, shewing scarcely any blood, excepting at the lower part of the inferior lobe of the left lung, where the lung is as dark red, as black currant jelly, contrasting strongly with the white healthy part above. Where thus carnified, it adheres to the diaphragm, and exactly opposite, upon the abdominal aspect, the diaphragm adheres to the top of an enlarged spleen, of a dark red colour, which has in this place yellow spots, dipping a small distance into its substance, so as to seem only a superficial deposition of lymph. This great spleen still extended to the iliac region, but did not extend more than half way across to the umbilicus, as once it did. The liver was large enough for an adult. The intestines are atrophied, and attenuated, and transparent, no mesenteric disease.

A much more conclusive proof of this propagation of inflammation of the spleen to the heart itself, is afforded in the following case of a female uran-outang, a fine animal, whose patient suffering physiognomy, would have formed a fine study for LANDSEER, or another frontispiece for TULPIUS. Its examination after death would have furnished to GALEN, proofs of inflammation more conclusive than the one which he has recorded derived from a similar source (see note p. 66.)

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* Medico Chirugical Review, London, June 1845.

ABSCESS IN THE SPLEEN, ENDO-PERICARDITIS ARTERITIS—HEPATITIS.

I found upon laying open the abdomen, that the liver was apparently enlarged bulging upon each side, especially the left, so as to encroach much upon the chest, forming an abscess apparently, covered at intervals with white flaky patches, universally softened, and dotted externally with tubercles. But the left lobe which seemed at first sight the most to push up the diaphragm into the chest, was found on more careful examination to be atrophied, and slightly ulcerated, and its vessels denuded, by a greatly enlarged spleen having pushed it aside. On alternately pressing the fingers upon this purple, inflamed projecting tumour, which the diaphragm formed over the spleen in the thorax, fluctuation was perceived; on cutting into this part of the spleen or the tumour, a large quantity perhaps eight or ten ounces of flaky pus escaped from the spleen, which was found entirely gone, excepting its external membranes, and the diaphragm to which it adhered above. The great end of the stomach seemed inflamed nigh into sphacelus. The lungs of both sides were found studded throughout with tubercular masses, large as peas, and affording a fine example of pulmonary tuberculosis, slight serous effusion in both pleuræ and the abdomen.

The left heart adhering to the pericardium, with intervals filled by flakes of lymph, floating in a small quantity of fluid; the right heart free, the coronary vessels upon the septum limiting the adhesion, the cardiac portion of pericardium where seen was opake, the left auricular appendix drawn in, contracted, as it were obliterated. On opening the right ventricle it was found to contain fibrinous clots, these were adherent in the auricle, grumous in the ventricle, membranous in the meatus to the pulmonary artery, the valves were obstructed, but none of these formed a continuous polypus. The pulmonary artery beyond the valves lined by an adherent false membrane loose at its distal extremity. The left auricular appendix puckered in, obliterated, both it and the auricles filled with white fibrine. The ventricle distended with fibrine, compressed in a sharp angular manner by the parts which moulded it; the lips of the aortic valves of a deep purple, swollen, the valves embarrassed with grumous fibrine; the canal of the artery lined by false membrane; the structure of the heart's muscular substance softened, of a peculiar pink hue. Other viscera apparently sound.

The opprobrium which has since the time of the illustrious SENAC, attached to pericarditis, as a disease, frequent, *difficult to be known, and more difficult to be cured,* is now fast passing away. Thus as to its *diagnosis.*

"As the *bellows-murmur,* when it occurs in a case of acute rheumatism, is the pathognomonic auscultatory symptom of endocarditis so is the rubbing or *attrition murmur* (heard in the cardiac region) the pathognomonic sign of pericarditis. The peculiar character of the latter sound differs very much in different cases; hence the variety of similitudes to which it has been compared. It not unfrequently resembles the noise produced by rubbing the hands together, or the cuffs of one's coat upon each other, or two pieces of rough paper; at other times it is like that, caused by the crumpling of parchment, or the creaking of shoe-leather, or the churning of milk, &c. &c. As Dr. Latham suggests, it would be much better to discard, or at least not to use generally, any word derived from these supposed resemblances, and to adopt instead the generic application of *exocardial*—intimating thereby that the sound in question proceeds from the external surface of the heart.

As regards *prognosis*, "M. Louis considers that perfect or partial recovery ....occurs in five cases out of six."

CONCLUSIONS.

I am happy to find that the views in which I refer most of these changes, to an inflammatory origin, are confirmed by one of the most profound of all our British writers on medicine, DR. COPLAND. He observes, in reference to *internal carditis*, "In treating of inflammation, and organic changes of the heart, I have always described it first, considering it as one of the most frequent forms of carditis, and in its various grades as the cause of most of the alterations observed in the structure of the organ."—If we investigate the changes of structure observed in the specimens before us, and bear in mind this observation as a guide, we shall not only find abundant reason to acknowledge its truth, but also, simplify the subject in a most remarkable and satisfactory manner. We shall no longer confine our attention to mere effects as hypertrophy, dilatation, ossification, or aneurism; but looking beyond these, to their source and origin, we may meet it when curable, by appropriate treatment, directed to subdue pericarditis, endo-carditis or both. The illustrations themselves are more complete, than usually found in Europe, being collected from cases which have run their rapid and destructive course of inflammation, under all the aggravations of a tropical climate. Thus as respects the heart, endocarditis, pericarditis, proper carditis, arteritis, calcareous and atheromatous deposits, aneurism, polypous and fibrinous concretions, occlusion of the valves, adhesion, ulceration and arctation; dilatation of orifices, contraction of orifices, hypertrophy of one or more cavities, dilatation of one or more cavities, or these combined in various grades, and in various ways, may be all considered as different modifications of the same thing—inflammation;[*]

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[*] "The inflammatory origin of the changes now described has been doubted by several pathologists, and even by Laennec; but it has been advocated by Frank, Kreysic, Hildenbrand, Andral, Elliotson, Bouillaud, Latham, Watson, and others.

"The *second stage*, or the period intervening between the fifteenth and thirtieth days of the disease, is attended by other alterations.—1. The inflamed membrane is more *thickened*, this change often extending to the connecting cellular tissue, and even to the fibrous textures, especially, of the valves.—2. The albuminous or fibrinous exudations now pass from the amorphous to the organised state and assume the appearances of *excrescences*, *vegetations*, *granulations*, *cellulo-fibrinous adhesions*, and of *sero-albuminous false membranes*. M. Bouillaud observes that the excrescences or granulations are most frequent on the valves, especially their free edges. He divides them into the *globular* or albuminous, and the *warty*. The former are soft, of a whitish, yellowish, or reddish hue, and easily detached; and originate in the organisation of adherent coagulable lymph, as observed to take place on the surface of other serous membranes. The warty excrescences are of a cartilaginous consistency and firmly attached. They are either distinct, or aggregated into groups presenting a cauliflower appearance; and vary in size from that of a millet-seed to that of a pea. Both these kinds of vegetation seldom exist alone, either on the valves or on the internal surface of the cavities; but are commonly attended by fibro-cartilaginous or calcareous induration of the valves; and whilst the connexion with other phlegmasiæ and occasional derivation from them, as before noticed, from pneumonia, phrenitis, dysentery, and gastritis, and especially rheumatism, give a practical interest to the study which is of the highest value.

Further confirmation of the fact is afforded in the treatment found most effectual in what are called aneurisms of the heart, and also of the arteries, which both originate for the most part in inflammation. Valsalva has given his name to the most strict antiphlogistic treatment of aneurism Whilst the most effectual treatment I have ever seen recorded in diseases of the heart, is that of Baron Larrey, who has successfully superadded topical derivation, to the large bleedings which are not always successful without it.

When inflammatory action is confined to the heart and great arteries, and it occurs in a strong constitution, especially if it be simple, uncomplicated with alteration in the size of the cavities, it is then best met with, by heroic depletion, as I think the following case will prove, for we must not forget the probable consequences of half measures.*.

CARDITIS, ENDO-CARDITIS, ARTERITIS, PHLEBITIS.

(*By Allan Webb, Esq.*)

Conductor———, a fine, handsome soldierly-looking man of about 40, upwards of six feet, and very stout, sent for me about 11 P. M. He was in great pain and distress, thought himself dying. He feels an indescribable oppression, referred to the heart. There is incessant palpitation and restlessness, frequent deep sighs, compressed, jarring pulse, this throbbing sensation is felt even in the temporal arteries, pain in the cardiac region, dull and 'tearing', aggravated by each pulsation of the heart, extending to the carotids of the neck, as well as to the back, and down both arms, with some

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when they are large, numerous, or aggregated, they necessarily occasion narrowing of the orifices, and an impediment to the action of the valves.—3. *Adhesions* of the opposed surfaces of the internal membrane were first described by M. Bouillaud, who has adduced six cases in which he met with them. They are, however, rarely observed; for the force of the blood's circulation, and the movement of the parietes of the cavities and of the valves, prevent their formation, excepting at those places where these obstacles are the least, as between the less moveable parts of the valves, and the opposite surfaces of the ventricles. These adhesions disturb the regularity of the circulation, by preventing the valves from completely closing the orifices. Another species of adhesion is sometimes observed between the opposite margins of the valves in certain cases of narrowing of the orifices, which will be mentioned hereafter.—4. *Organised false membranes* are also occasionally found covering a greater or less extent of the internal surface of the heart; and M. Bouillaud states, that he has seen these membranes consist of several superimposed layers. In place of these, small colourless patches, of from four to six lines in diameter, sometimes form on the endocardium, and may be removed, leaving it more opaque than natural.—In many cases, the supposed thickening of this, tissue has been entirely owing to organised false membranes; but as often the endocardium is itself thickened, opaque, and its free surface unequal, somewhat wrinkled, and villous; this change extending, as stated above, to the connecting cellular tissue." Copland Dict. Pract. Med. p. 181, 182.

* En la inflamacion de la membrana interna del corazon, dice Boisseau: "L'ouverture des veines est en général préférable à l'application de sangsues, car il faut opérer une déplétion prompte et copieuse." En mi práctica he visto siempre confirmada esta verdad. Pero tambien advierto que en la cantidad de sangre esta calentura, debe el médico ser mas cauto que en ninguna otra dolencia. A fin de no rebajar un punto la fuerza requerida para poder llevar aquel envenenamiento á término de asimilacion ó de espulsion. Ardevol, *apuntes acerca la cardite intertropical*, p. 289.

degree of numbness attended with tumultuous action of the heart. The stethoscope detects an unusual sound there, a bellow's murmur, or something like it. The air is heard to enter the lungs freely, at all parts, the chest sounds well on percussion. Intelligence unimpaired, pupils natural.

From his own account, he has been out for three or four days, using great muscular exertion, under a burning sun ; and drinking, not a little, brandy and water. "He was so hoarse shouting to the coolies," to-day he was out without food, nearly all day, in a covered boat, but still the heat was fearful. He felt this pain coming on then, but it increased after he got home. He thought it was fever, but feels sure it is not. He feels "as if his blood were hot in his veins." He was bled (to fifty-six ounces) with almost complete relief. Two grains of opium, ten grains of hyoscyamus, ten grains of calomel, and five of camphor were given at bed time. Next day after the operation of a dose of castor oil, he felt so well, that against my positive orders, he went out of his quarters, to give directions to workmen ; and in consequence, did not feel so well in the evening. On the third day, he felt some return of the same distress at the heart, and as I refused to bleed him again, and insisted upon perfect repose and quiet, with repeated doses of hydrocyanic acid, he became impatient ; and walked to the quarters of the Apothecary, got one of the apprentices to tear open the mouth of the wound, made by V. S., and to abstract sixteen ounces more blood. He then felt quite relieved; went back, and had some chattahs of cold water thrown over him ; whilst thus bathing, the wound opened again, and he could not easily bind it right afterwards. Felt for the first time a slight shivering after leaving the bath. The fourth day he was seized with the most horrible rigors, whilst bathing; believes he lost his senses. All the symptoms of most severe phlebitis followed, and he died on the eighth day.

Autopsy fourteen hours after death.

With great difficulty, I was permitted to examine the chest and abdomen only. The whole tract of the basilic and axillary veins was thickened, and matted with the surrounding parts ; from the orifice discharging pus, to the cava: obstructed with fibrine, at some of the valves; containing only dissoluted, and oily-looking blood. The heart was so soft that the fingers easily broke through its parietes, it looked as if sodden in blood, of a reddish brown color, no disease of the valves, but a pearly tint generally of the endocardium, a purplish tint of the lining membrane of the aortic arch and its great arteries. The liver very small, from schirrosis. Other organs so far as seen in this hasty inspection, appeared healthy.

The previous history of this case is deserving of attention. He had been a man distinguished for his bravery and daring, in the Mahrattah war. On one occasion, in the most intrepid manner, he succeeded in rescuing the Colonel of his regiment from imminent peril: on another, he led a forlorn hope. He would have been promoted to a commission, but for his love of drinking. He knew this, and it weighed upon his mind, at times, so acutely as to make him weep ; but not to give up this besetting sin. He suffered three attacks of delirium tremens. About a month or six weeks previous to his death, he had fallen into the hands of some Bengallee syces, when in a half state of intoxication; and these cowardly savages, as usual with such innate cowards, most brutally attacked him; beating him with lattees, and dragging him by the testes, till they thought him dead : and to prevent his reviving stuffed his mouth with horse dung. He did however recover, and crawled from the drain where these inhuman wretches had thrown him. He passed blood by vomiting, by stool, and urine, for some days ; the only serious evil then remaining, was an obliquity of one eye and loss of memory as regards all recent events. A large blister which I applied and kept open, entirely removed these effects and he was at the time of the attack of endo-carditis apparently in his usual health. But I have no doubt from the irritability of temper, and great excitability which he still shewed, that the attack of cardiac inflammation was the remote sequence of this ill usage, as even abscesses in the heart, have been known to follow blows upon the head,[*] and he had suffered blows enough to kill half a dozen of the pusilanimous wretches, who attacked him unarmed, and at unawares.

It is difficult to tell how much the heart might have been influenced by the phlebitis, but for myself, I feel sure, that he had suffered endo-carditis and carditis, and that this inflammation had been propagated along the lining membrane of the great arteries, and that, but for his own wilfulness, in tearing open the vein again, he would have quite recovered, by one single large bleeding.

But whilst in the herculean frame of the person I have just alluded to, these heroic measures are so beneficial, we may have endo-pericarditis in the most emaciated, the most debilitated ; as in the following instance of one of illustrious family, and high rank, whose name it is not necessary to mention, in whom it seemed to supervene upon a state of passive dilatation of the left side of the heart, consenting as it were, with the general atrophy, of a very tall, very thin, emaciated person ; subject for years to alarming and frequent swoonings, when exposed to the debilitating influences of the plains of India, and the harassing duties which his rank and station devolved upon him.

Case.

On being called suddenly to the great effort of addressing a public assembly, without previous notice, although feeling unequal to it, he urged himself through the task, but the exhaustion, and collapse that followed were most alarming. The swooning was attended with such absolute coldness of the extremities, that frictions and stimuli, had been long and freely used, before warmth, and circulation were restored. *Pain*, severe, and continued, was now for the first time a feature in the disease, this pain was continual, confined to the cardiac region, occasionally extending to the left shoulder and arm, dull, and heavy, with occasional numbness and a feeling of great oppression, relieved partially by deep sighs. This occurred on the 19th of February, on the 20th I visited him, and was struck with the expression of suffering, and pain so manifest in his countenance. The pain was acute, skin warm and dry ; palpitations were frequent ; pulse quick and sharp ; sleep impossible, even with large doses of hyoscyamus. A sinapism to the chest relieved the pain : sleep followed. Next day the pain was increased, and was felt acutely by exerting pressure both upon the intercostal spaces in the cardiac region, and also underneath the ribs to the left of the ensiform cartilage. Leeches, with pills of calomel, opium, camphor, and antimonial powder, relieved all this ; which was inflammation probably of the adhesive character, of the endo-pericardia. Dullness in the cardiac region has not increased there since, there were no sweats, and no permanent prominence now remains. Since that time every exertion, every agitation of mind, every anxiety, or suspense about his family, have added greatly to these sufferings. A sleepless night, increase of oppression, or even pain; or palpitation, now result from long continued letter-writing or after going up-stairs. I have seen pain and palpitation brought on, by his rising suddenly from a sitting to a standing posture, to reach a book. General debility of the whole system amounting to cachexia, great emaciation, occasional depression of spirits, with embarrassment of the digestive functions, have now been superadded ; and a fine, acute, intelligent mind, hitherto sustained by a naturally cheerful disposition, and by fervent piety, can scarcely bear up before this sad prostration of all bodily power.

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[*] “ L'histoire suivante qui est rapportée par Cornax, en ces termes. Nicolas Massa mon ancien maître, ouvrit le corps d' un marchand qui étoit mort d'une plaie de tête on trouva un abscès de la grosseur d'un œuf de pigeon dans l'oreillette & dans la substance du cœur ; peut-être que cet abscès ne venoit pas d'une telle plaie ; il se pourroit faire qu'il eût une autre cause ;” mais je crois être en droit de le rapporter à celle qui produit de semblables dépôts dans tout le reste du corps.” Senac l. vi.c. iv. p 377.

The following is a case in which many successive attacks apparently of endo-pericarditis were successfully treated. Upon the last occasion the large bleeding of forty ounces, however much needed for the pneumonia, was perhaps too great, when hypertrophy with dilatation of the heart, had supervened.

ENDO-PERICARDITIS.

(*By J. Innes, Esq., M. D., Surgeon 5th Battalion, Artillery.*)

7 P. M. Appl. Hirudines xv. parti dolenti Pil Purgans iij. S. S.	George Rowe, aged 39 years, Bugler, 5th Company 5th Battalion Artillery, admitted 17th August, 1843, with a return of his pain in the left side of the chest shooting towards the back, which came on yesterday, pulse quick ; tongue foul ; bowels open ; skin moist, a prisoner from the orderly room.
18th. V. S. ad. ℥xviij. Mist. Sennæ C. ℥ij.	Still complains of pain of the left side as much as ever, pulse 76 and soft, attributes the pain to a fall he had from a horse some years ago.
19th.	The pain of side quite relieved, bowels regular.
21st.	Discharged.
Sept. 7th. 7 P. M.	Readmitted a prisoner from the guard, with a relapse of pain in the left side. Tongue foul, pulse quick, bowels confined, skin cool and moist. Has been drinking, (relieved by similar treatment.)
14th.	Discharged.
Sept. 21st. 11 A. M.	Readmitted with an increase of pain in the left side, bowels confined. Tongue rather foul, skin cool and moist, pulse quick and full, a prisoner, appears to have been drinking. Discharged on 23d.
Feb 20th, 1844. Pil Aperiens iij. S. S.	Readmitted, complains of pain of the chest which affects his breathing, especially when he runs or blows the bugle ; also palpitation of the heart, pulse regular, tongue clean. Discharged on 26th.

May 23rd.
Vesp.
Appl. Hirudines xxvj.
Pulv. Jalap C. ʒss.
Calomel gr. v. mane

Readmitted with pneumonia, complains of pain extending all over the chest, says his appetite is indifferent, tongue white, pulse eighty, has been a prisoner at Chunar for forty days.

24th.
V. S. ad. ℥xij.
Mist. Sennæ Co. ℥ij.

The pain still affects the breathing, bowels not yet open, pulse eighty-eight and regular though small.

Vesp.
Rept. Hirudines xx.

Was bled to a pint, but pain of chest and difficulty of breathing continue, bowels freely opened.

25th.
Repr. Hirudines.

Respiration still affected, was relieved by the leeches applied last night, but has passed a restless night, bowels open. Before the leeches ordered were applied, was seized with increased difficulty of breathing and pain all over the chest, back, and shoulders.

8 A. M.
V. S. ad. ℥xl..

Is relieved by the large bleeding, but still breathes with difficulty, expresses himself as feeling much lighter. During the bleeding, the pulse became more firm and full, a large blister to be applied between the shoulders, and should difficulty of breathing return, leeches to be applied to the chest.

10½ A. M.

The pain and difficulty of breathing increased about half an hour ago, when 20 leeches were applied and a draught of Spt. Œther Sulph. administered, notwithstanding he became worse, and has just expired.

Post-mortem Examination.

Chest.—The heart very much enlarged, and in part adhering to the pericardium. Lungs gorged with blood and adhering extensively to the pleuræ.

Abdomen.—Liver large, dark and gorged with blood, stomach and intestines healthy.

N. B. The pulse at no time indicated irregular action of the heart, as stated on his several admissions; the seat of pain was uniformly the left side; and speedily relieved either by letting blood or applying leeches, together with a smart purgative.

COMPLICATIONS OF ENDO-PERICARDITIS.

The case of the Hindoo recorded p. 69 affords a fine illustration of disease of the heart in consequence of phthisis. In the cases of phthisis among natives, and Europeans, that will be adduced in the division AIR PASSAGES AND LUNGS, this coincidence of endo-carditis and endo-pericarditis, with pulmonary phthisis, and pneumonia, will be still further elucidated. It is a very important pathological discovery, for which we are mainly indebted to M. BOUILLAUD; one half of the cases of pulmonary phthisis which he adduced afford this coincidence.* He remarks in further confirmation of the general law of coincidence of cardiac inflammation, with phlegmasiæ of the lungs and pleura, (see case

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* BOUILLAUD, *Clinique Medicale*, p. 480.

p. 31) that the heart is generally found to be affected upon the same side with the diseased lung or pleura; whether that be the right side or the left. To the same eminent authority we owe the discovery, not only of the frequency of endo-carditis in rheumatism but also its pathognomic sign—the endo-cardial bellows murmur respecting which D. **Latham** says—

"Seeing, then, that the endocardial murmur, alone can determine the existence of endocarditis, you are required to search after it in every case of acute rheumatism. I say emphatically *to search after it*, because it is one of those signs which must always be sought before it can be found. It does not intrude itself upon our notice like palpitation, or an irregular pulse. The patient does not draw our attention to it as he does to pain. The physician must make it out entirely for himself. And indeed it is infinitely important that he should have the earliest possible notice of it with a view to the earliest possible application of the remedy." p. 105.

I lately attended with my friend and colleague **Professor Pearson**, a young gentleman aged sixteen, who had with hypertrophy of the heart suffered liver disease, and frequent attacks of epilepsy, the heart towards the last few days of his life, had been inflamed, and this diagnostic sign the endo-cardial bellows murmur was very distinctly perceived by both of us.

There was no disease of the valves as seen in the autopsy.

Autopsy.

The external surface of the body; was only remarkable for great emaciation, swelling about the base of the jaw and throat, which accompanied the salivation and a slight bulging of the cardiac region.

Head.—Upon dividing the pericranium, and calvarium, there was no bleeding at all scarcely. The dura mater natural. The arachnoid muddy looking, blistered up, from serum effused underneath it throughout the whole surface of the brain. The pia mater very vascular. Upon slicing the brain, no effusion in the ventricles. The organ of normal consistence. Atrophy slight, I think, of the cineritious substance upon the summit,* certainly atrophy of the nerves at the base, especially of the first and second pairs, and of the medulla oblongata, and first portion of the cord, with effusion into its canal.

Chest.—Lungs healthy, no effusion into the right side, little into the left side, little into the pericardium.

Heart.—Externally whitened on its pericardiac membrane, quite altered in form, bulging out upon the left side so considerably, and in a less degree upon the right, that it was almost of a globular form. The right auricle dilated, its cavity lined by an adherent, thick, fibrinous effusion; only colored at its edges, prolonged into the ventricle, and meatus to the pulmonary artery, very adherent throughout. The right ventricle had its walls attenuated and dilated considerably. The left auricle filled with fibrine, the appendix puckered in, on pulling the coagulum, it became inverted. A thin layer of the same plastic lymph was unextricably connected with the mitral valve, and prolonged into the left ventricle. This ventricle itself considerably hypertrophied, the walls so thick as to measure an inch and half across their thickest part, the whole muscular structure softened. The endocardium opake.

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* "The grey substance becomes diminished and no vascularity of the white exists. This change of structure when chronic has very frequently been observed by various authors in epilepsy." M. Pinel. quoted Med. Chir. Review, London, Jan. 1845.

Abdomen.—Liver natural, excepting perhaps of a darker hue than usual, no adhesions. Stomach and intestines distended and their coats thin and transparent, no mesenteric disease, urinary bladder slightly distended, omentum shrivelled.

Deductions.

The brain fever had left evident traces of its severe nature, in atrophy of the nerves and cineritious substance, thickening of the arachnoid, &c. It had probably induced the disease of the heart, most extraordinary in a youth of sixteen, and hardly to be supposed brought on, by nine months' residence in India. This enormous hypertrophy drove the blood out, faster than the veins could return it through the lungs, hence the dilatation of the right cavities of the heart ; whilst the force of the blood had induced congestion or inflammation of the liver, for which he had successfully been treated. And subsequently also congestion of the rachidian vessels, and repeated attacks of epilepsy. Lastly the same cause, *i. e.* this powerful impulse of the left ventricle, produced serous apoplexy ; shown by insensibility and stertorous breathing before death, in the general effusion over the brain, found after death, of which apoplexy he died. Having only a few days preceding his death had inflammation of the heart, or endocarditis, as shewn in the fibrinous coagula and softening of muscular substance, probably brought on, as well as the attack of glossitis, by exposure to cold, whilst under mercurial influence, and detected during life by the peculiar endo-cardial bellows murmur which we both observed, and still further proved by the unnatural heat in the cardiac region developed after death.

The records of the Medical Board of Bengal have been most liberally allowed to me, and from them I have adduced these cases of chronic and acute endo-pericarditis, among Europeans. With the exception of the cases so kindly forwarded by DR. CLARK and DR. J. JACKSON, all the others from p. 33 to p. 53 were derived from this source. I have to express my regret that in copying the interesting case of chronic endocarditis, related at p. 32, the name of the surgeon was omitted, I hope to be able to supply it hereafter. In the chronic case of pericarditis related at p. 29, also in that more fully detailed by DR. A. WOOD, p. 33, there is evidence of the endocardium having been affected. In the latter, effusion of lymph is found to plug the cavæ. In DR. MCRAE's case inflammation of the convex surface of the liver shewn by cicatrices, would seem to have induced endo-carditis, the effects of which are recorded. I infer that acute endo-carditis had existed in DR. DENHAM's case, for wherever fibrine is found to accumulate in the auricles and become organized, which it readily does in the appendix, it will almost certainly be found to have originated in a pericarditis, transmitting the phlogistic action to the endo-cardium : the disease of the valves was of older standing. Both old and recent pericarditis existed in DR. CLARK's case, related p. 38.

ATROPHY OF THE HEART.

We have one curious specimen of atrophy of the heart from disease of the coronary arteries. (No. 260, p. 15.) Of this Professor TIEDEMANN remarks—

" A necessary effect of arctation of the coronary arteries, or complete closure of one of them, is diminished supply of arterial blood to the heart, in consequence of which its nutrition is impaired. The imperfect nutrition is made known by the thinness of the walls of the organ, and a true atrophied state. The muscular substance is of a less vivid red ; softer, more flaccid, and more easily torn than in the healthy state. At the spots where the muscular substance is most wasted, much fat is deposited beneath the cardiac division of the pericardium, and the heart appears covered and enveloped in fat. The thickness of this deposit is one reason, the author thinks, why, in some cases of diseased coronary arteries, the observers have not remarked the attenuated state of the muscular walls of the organ. The atrophy the author distinguishes into concentric, in which the walls are thin, and the cavity is diminished ; and eccentric, in which, while the walls are attenuated, there is evident enlargement of the cavity, the circumference of the heart is increased, and the organ resembles a bladder-like sac or pouch. Another necessary effect of arctation or partial closure of the coronary arteries, causing impaired nutrition of the heart, is debility in its vital actions. This conclusion, he thinks, must follow on physiological principles, from what is known of the dependence of muscular contractility and energy on the free supply of blood to the muscles." In the singular specimen which we possess of this disease, the cavities are dilated and it resembles a bladder-like sac or pouch covered with fat. A strange thing to call this production of fat, impaired nutrition, depending upon diminished supply of blood. Senac reverses the explanation, and makes the fat compress the arteries, and impair their actions, and also those of the nerves ; I do not know but that the oldest reasoning is the most conclusive of the two.[*]

The extraordinary *atrophy of the heart* in a case of Kurnaul fever related at p 40, by Dr. Elliot, must either be congenital,or the result of the fever;for the lungs were perfectly sound.[†] The other cases of atrophy of the heart, as the one noticed p. 28, No. 641, where the wall of the left ventricle is no thicker than an orange peel, as Nos. 744, and 1018, and others which will be found in the DIVISION AIR PASSAGES AND LUNGS, are all connected with tubercular or other disease of the lungs. Bouillaud found one-third of the cases of phthisis presenting this alteration of the heart to a greater or less degree.[‡] Dr. Jackson's case, of aneurism in the heart probably originated in ulceration at the root of the aorta, as in Dr. Green's case No. 1381,

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[*] "Des vices remarquables, que cet organe contracte sous cette graisse si déplacée, doivent concourir à de tels accidens, ou en produire de nouveaux ; pressé de tous côtés, il se concentre souvent, & se réduit même à un petit volume ; les vaisseaux coronaires extérieurs. sont parconséquent aussi exposés à la compression ; je les ai vus rétrécis & durs comme des cordes de violon ; or dans cet état leurs fibres reçoivent moins de nourriture, & ne sont plus animées comme auparavant, par l'action du sang ; la force des nerfs ne doit pas être moins affoiblie ; ils sont comprimés de même que les arteres & les veines."

[†] " Bierlingius l'a observé aprés une fiévre maligne ; ce qui étoit plus singulier dans ce dernier cas, c'est que le cœur avoit un petit volume ; Senac. li. vi. chap. v. p. 385.

[‡] La diminution du volume du cœur ou l'atrophie de cet organe n'a été notée que chez trois des neuf sujets qui ont succombé. Cette atrophie serait constante, je crois, si dans quelques cas l'inflammation qui s'empare de l'endocarde et du péricarde, mais surtout de la première de ces membranes, n'était suivie d'une hypertrophie de l'organe. C'est ce qui nous a fait dire, en parlant du cœur de la femme qui fait le sujet de notre première observation, que cet organe était trop volumineux pour une phthisique. Ainsi donc, l'atrophie du cœur reconnait pour une de ses principales causes la phthisie pulmonaire, et cette maladie l'entraîne á sa suite au même titre que l'émaciation ou l'atrophie des autres organes en général On peut donc dire de l'atrophie du cœur chez les phthisiques, qu'elle a lieu parce que la phthisie a existé, tandis que, dans les cas où elle fait défaut et dans ceux surtout où le cœur est hypertrophié, ce résultat a eu lieu non pas parce que les sujets étaient atteints de phthisie, mais *quoiqu'ils* en fussent atteints.

Bouillaud Clin. Med. p. 482.

Softening of the heart in the case related by Dr. G. G. Brown, seems to have been the result of true inflammation of its structure, in which participated all the other thoracic organs, lungs, pleura, pericardium and endocardium. It is a very instructive case, and the judicious treatment seems to have all but prevailed. The man struggled on for more than a month. It is very similar to the case of the Hindoo, related, p. 30, who only survived two days in hospital: indeed his disease may be said to have been uncontrolled. Another case of softening in the course of fever, is extracted from the report of Dr. A. Wood. One case I have myself related, from being however, complicated with phlebitis, it is not quite conclusive. I feel certain that our fevers in India which soften the brain, liver and spleen, by a peculiar inflammation, exert the same action upon the heart also. Besides the observation of Bierlingius to that effect, Morgagni has noticed this sequence of fever. Senac recognizes fever as a most likely cause of softening; he says the very violence of the heart's actions may produce it, and instances the case of animals who have been hunted, in whom this effect is produced.* He says he has seen the heart of a hunted stag so softened, that the fingers sunk into it like a rotten pear. I have seen the same state in man cause laceration and death.

Instances of softening, require like cases of fibrinous effusion, a practised and experienced observer to detect them, even after death. I have seen a surgeon overlooking softening so palpable, that the parts would hardly bear their own weight. No less care is required in other kinds of inflammation; the most remarkable instance of inflamed heart with fibrinous effusion in our collection was reported to me as " sound." And sound it would appear to those who in place of examining it under water, merely thrust in a finger, to see if the valves be ossified, and if not, report all " sound." These remarks apply especially to our subordinate medical department, when not instructed in pathology. But certainly the cautious admissions, or absolute denial by Lancisi, Pasta, Morgagni, and Senac, of the existence of organized polypi at all, continue to exert an injurious influence to this day, notwithstanding the contrary testimony of Harvey. I shall not however repeat remarks already made, but hope they sufficiently prove, coagula, fibrinous, and adherent, to be distinguishing signs of recent inflammation. Why then should they be rudely torn off, from an inflamed endocardium, whilst every blush of redness in the mucous membrane of the intestines, is recorded *as a valuable pathological fact*. Until these facts are recognized, their value estimated, and their relation with symptoms recorded, but little advance can be made in the pathology of the heart in India.

The association of hypertrophy of the heart with œdema of the lungs, is seen in some of the cases here recorded, and also its connection with the dropsy of other organs, and termination in sudden death. The bad effects of large bleedings in dilatation with hypertrophy, is seen in case 754, p. 18, and in the case recorded p. 84. The tendency to produce serous or sanguineous apoplexy. in case 640, p. 23, and No. 775, and again in case related p. 79. The preparation No. 1021 deserves notice. This specimen was taken from an European, a fine handsome looking sailor. I saw him the day before his death, when there was great heaving of the chest, with each pulsation of the heart, and a loud bellows murmur ; its greatest intensity being heard to the left of the sternum, about the third intercostal space. We observe in the preparation a rupture of one of the aortic valves, and that this is partially repaired by exudation of lymph. The man died suddenly. Inordinate spasmodic action of the heart came on, driving, by the force of this left ventricle, so dilated and hypertrophied, the blood into the various organs, producing at once apoplexy of the brain (No. 1023), of the lungs (No. 1022,) and of the liver (No. 1024)—the skin being conjested of a deep purple color all over the head, and neck. In this case the left ventricle was one inch thick, five inches in its perpendicular diameter, and measured transversely when laid open, eleven inches. Dr. Clark's case (related p. 38) is another almost similar instance. Thus the two most immensely developed specimens we have, of hypertrophy of the heart, (left ventricle) were both taken from patients carried off suddenly, by a sort of convulsive action, urging the blood as by a forcing pump, into the great viscera, and producing apoplexy of brain, lungs, and liver, at once.

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* "Un dépôt de la fiévre, peuvent se jetter sur cet organe, arrêter les fluides dans son tissu, affoiblir les liens ou la cohesion de ses parties élémentaries, détruire méme le tissu qu'elles forment; les autres visceres sont si sujets à perdre leur force & leur consistance, pourquoi le cœur seroit-il exempt de ces accidens?

La violence seule du mouvement peut être la cause qui produit ce désordre; elle attendrit les chairs des animaux; on ne doit donc pas s'étonner qu'elle remollisse ce muscle qui n'est jamais en repos, & dont l'action est si vive; je l'ai vu si flasque dans des cerfs qui venoient d'être forcés, que les doigts, sans aucun effort, s'enfoncoient dans le tissu des ventricules comme dans une poir molle; il étoit, pour ainsi dire, sans consistance, & prêt à se dissoudre, sans qu'il eût rien perdu de sa forme, & ce qui est surprenant, sans que ses cavités fussent dilatées." Senac lib. vi. c. v. p. 387.

Some affections act from without, compress the heart by directly *squeezing it* from all points, as in Nos. 256 and 772 ; others from one point only so as to displace it, as No. 753 and No. 621, p. 20. Another effect of external agency, which seems to have the uniform relation of cause and effect, is the enlargement of the left ventricle, when the impulse it should give to the blood, is taken off by a diseased artery, increasing the friction ; or by a *dilated* and diseased artery ; for we have then superadded, that which lessens the force of a river, if its narrow and confined stream be spread abroad : and an increase of muscular structure is required to overcome it. The same effect, hypertrophy, is seen to follow, or at least is associated with, every large, empty, aneurismal sac, near the aorta; being produced in the same way. If these be so constantly associated as I believe them to be, the evidence of hypertrophy of the left ventricle, which is not difficult to detect *might become an useful auxiliary, in our diagnosis of aneurism of the aorta.*

In concluding our reflections upon these preparations and cases illustrating disease of the heart and circulation, it must I think, be conceded, that they prove, what I had long conjectured, that it is both a very common disease in India, and that it has for the most part an inflammatory origin. As member of the Presidency Invaliding Committee, I have observed, as before stated, great numbers of soldiers invalided annually, for this cause alone ; it was stated to have followed upon attacks of congestive fever, or of cholera. And if the work which I have undertaken have no other more valuable result, I hope, it may attract the attention of our Service to such very important sequela. But as Senac observes, if fevers cause inflammation of the heart, and that too more frequently than is generally thought, it is rarely nevertheless, that we investigate its action here, or even suspect it of being thus affected." *

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* ' Il s'ensuit de là que les fiévres violentes peuvent allumer une veritable inflammation dans le cœur ; il s'enflamme, selon Cornélius Gemma, dans des fiévres hémitritées &

The newly arrived cadets and recruits when suffering from what is called "seasoning fever," often exhibit, what I believe to be, endo-carditis in an acute form. So far as my memory serves me (I have not the reports) the Kurnaul fever showed many instances of softening of the heart; almost all of what are called putrid fevers, shew this. The extraordinary depression of the pulse, and weakness of circulation in the Bengal fevers at the end of the rains may have their origin in similar lesion of the heart primarily. HARVEY expresses his opinion regarding tertian fevers beginning with congestion of blood in the heart.* In berri-berri it seems to be the cause of death. The worst forms of cholera begin with the oppression and weakness of the heart's action. This has been prominently noticed by Dr. J. MOUAT, the Inspector General of H. M. Hospitals, Madras. It seems always to have attached to cholera, for it is mentioned by RIVERIUS A. D. 1564. The *essential* feature of yellow fever is said to be endo-carditis. The fever has been styled by M. ARDEVOL "*La Cardite intertropical.*"† The appeal of M. ARDEVOL is worth our attention in INDIA. He says, I entreat professors of medicine who inspect the bodies of those who have died of fever, that they will observe whether in the instances where a yellow coagulum is found at the mouth of the aorta, the patients have complained of burning cardialgia, inextinguishable heat, thirst, pleuritic pains, &c.

That natives of India suffer the most severe forms of cardiac disease is abundantly displayed. But where can we find among all the various families of man—one single exemption from

"*The heart-ache*, and the thousand natural shocks
"That flesh is heir to?"

We may conclude in the eloquent words of HARVEY—"Omne namque animi pathema, quod cum dolore et gaudio, spe aut anxietate, humanas exagetat mentes, et ad cor usque pertingit, et ibi mutationem a naturali constitutione in temperie et pulsu et reliquis facit:"

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pestilenti[illegible]es; une fille de quatre ans fut attaquée d'une fiévre rebelle; le péricarde s'étoit épaissi, dit Kerkering, & la substance du cœur étoit noirâtre; c'est-á-dire que tant présentoit les apparences de l'engorgement, du feu & de l'irritation.

"Mais, s'il est vrai que le cœur s'enflamme dans diverses fiévres, l'inflammation peut être plus fréquente qu'on ne le croit; c'est rarement qu'on porte ses vues sur cet organe; à peine soupçonne-t-on que la cause des accidens puisse être dans une telle partie; cependant, quand ils sont violens, pourroit-on douter qu'elle ne souffre? ne doit-on pas craindre quelquefois que les crises n'y forment des dépôts, comme elles en forment dans le reste du corps?

"Peut-être que, dans ce Breton, dont Houlier a parlé, & dont le cœur étoit enflammé, on auroit découvert de telles causes, si on avoit mieux examiné les circonstances de la maladie; aussi le grand Duret, dont l'exactitude & la sagacité ont répandu tant de lumieres sur le médecine, soupconnoit-il que les fievres ardentes portoient l'inflammation dans le cœur même." SENAC li. vi. c. iv. p 373.

* "In tertiana febre, morbifica causa, principio cor petens, circa cor et pulmones immoratur, et anhelosos, suspiriosos, ignavos facit; quia principium aggravatur vitale, et sanguis in pulmones impingitur, incrassatur, non transit (hoc ego, ex dissectione illorum qui in principio accessionis mortui sunt, expertus loquor); quando semper pulsus frequentes, parvi, et quandoque inordinati sunt: adaucto vero calore, attenuatione facta materiae, apertis viis, et transitu facto, incalescere universum corpus; pulsus majores fieri, vehementiores; et fit paroxysmus febrilis: dum calor scilicet praeternaturalis, accensus in corde. inde in totum corpus per arterias diffunditur, una cummateria morbifica; quae eo modo a natura exsuperatur et dissolvitur. *De. Mot.Cord.*

† "Los efectos de la sangría son los de proporcionar una deplecion pronta y sensible sedando algun tanto el sobreescitamiento del corazon, *único organo premariamente sufriente en aquella terrible calentura*" p. 289. At page 128, he details *ten* reasons for the opinion, La cardite intertropical. Illamada vulgarmente fiebre amarilla. par D.Jaime Ardevol, Paris. 1833.

DIVISION—AIR PASSAGES AND LUNGS.

INTRODUCTION

TO THE RESPIRATORY SYSTEM.

Aristotle has said, that nature can employ the same agent to many purposes, this is especially true of respiration, which is the grand distinctive attribute of the animate creation, for of all living creatures it may be said, take away their breath and they die. In man, therefore, this essential condition of his existence, breath, both in expiration and inspiration, is made subservient to other senses and faculties; and all these offices may be exercised simultaneously yet each in its fullest perfection. He may at the same time, inhale the perfume of the scented grove ; listen to its feathered, tuneful warblers ; and express his pleasure in eloquent discourse; whilst the pure fresh mountain air may give vigour to his frame, animation to his heart, and perhaps add poetic passion to his look and action ; for that nearly all *expression* depends upon respiration, our distinguished countryman **Charles Bell** discovered. But before this truth had been so beautifully illustrated by the pen and the pencil of this accomplished physiologist, the mechanism of respiration, so simple, so admirable, so full of interest, and of obvious design, had called forth in the illustrious **Galen**, that fine toned, deep, reverential feeling, which although pervading generally all his works, is nowhere more evident than in his book *de Usu Partium*, *lib.*vii.) relating to this subject ; where he rejoices in each new display of omnipotent power and wisdom. It lends indeed, a charming freshness, and novelty, to our study of his works, to see how his contemplations rise continually from the exquisite design to the great, but to him unknown designer ; whilst he repudiates, as alike opposed to reason and to facts, the notion that we are made by accident : even **Moses** whose divine revelation he could not have understood, is censured because supposed erroneously, to recognize a lower standard of divine intelligence than was attributed by **Galen** to the unknown GOD.*

It is not only this fine manly tone, of reverence for the creator, through his creation, that gives so deep an interest to the works of this ancient physiologist, and which, for the most part, we seek in vain, among the moderns, for their *mental* vision is too often so " cribbed, cabined and confined" that, like the mole, they are dazzled at the little bit of light and truth which by pushing and scratching they may have at length discovered ; whilst the comprehensive vision that combines all into one harmonious view, is too often wanting. But another and most cheering fragment of the history of human opinion, is here presented to us, we see in GALEN, a hardy spirit, and most acute intelligence, grappling with difficulties too great in his time for any one man to overcome, however highly gifted ; dashing aside the vain theories which for ages had clung to the subject of respiration ;—and finally leaving us here also, as he did in the circulation, the broad road of experimental research, by no means unsuccessfully explored. Witness his researches into the mechanism of respiration, its hard frame work, its acting powers, its vital endowments also, by nerves, and by vessels, all patiently, minutely, successfully considered ; whilst his reasoning upon the final uses of respiration, is fully worthy of his exalted genius, and enduring fame; and would form a most useful adjunct to many treatises upon physiology now in vogue.

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* He seems to stagger at the doctrine of God's omnipotence "Neque enim si lapidem repente velit facere hominem, efficere id poterit. Atque id est, in quo opinio nostra, ac **Platonis**, tum aliorum, qui apud Græcos de rerum natura recte conscripserunt, a **Mosis** dissidet." *De Usu Partium*, lib. ix. cap. 14.

"The earlier physiologists and philosophers differed much in opinion regarding the uses of respiration to the animal frame. Asclepiades, according to Galen, (*de Usu Respirat.*) held that it is for the generation of the soul itself, breath and life being thus held to be identical ; for the strengthening of it according to Praxagoras ; for the refrigeration of the innate or animal heat, according to Philiston, Diocles, and Aristotle ; for its nutrition and refrigeration, according to Hippocrates ; for the filling up of the arteries with spirit, according to Erasistratus. All these opinions are discussed and commented upon by Galen ; who comes to the conclusion that the purposes of respiration are two-fold ; first, to preserve the animal heat, and second, to evacuate the fuliginous part of the blood."*

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* In the very clever article *On the Physiology of the Ancients*, from which the above translation of the opening of GALEN's book *de Util. Resp.* is taken (Brit. For. Med. Rev. April 1843) the writer has omitted a *third* office, attributed by GALEN to the respiration, namely, the nutrition of the animal spirit in the brain, from whence it is distributed by the nerves to all parts of the body. It was said to be a lucid etherial exhalation from the blood, more rarified and immaterial than either natural or vital spirit, in fact it was viewed by the PLATONISTS as the connecting medium between soul and body, mind and matter. And is that very subtle agent by which the Mesmerists of our day can best explain the wonders which they perform, and when again admitted into our physiological reasoning upon the brain and nerves, is likely to give more rational conclusions to say the least, than the present doctrines of materialism. The following quotation from GALEN gives his views upon this and other uses of respiration, and is a fair sample of his reasoning, and of his piety.

" Ad reliqua enim iam mihi est aggrediendum. Cum enim respirationis usum primum esse & maximum eum dixerimus, ut nempe caloris natiui conseruationem (propter quem animalia repente intereunt, priuata refrigeratione) secundum uero minorem, nempe spiritus animalis nutritionem, admirari iam naturam cōuenit, quo pacto tum ad hæc, tum, ad uocis generationem pulmonem effecerit accōmodatum. Nam, quòd arterias læues omnes per anastomosin ad unum principium applicuit, sinistrum cordis uentriculum, in quo caloris natiui est principium, in hoc quidem, ceu refrigerationem cōtinuam cordi comparauit, celebrare ipsam est æquum. Quod uero in cordis compressionibus, id quod ueluti fuliginosum in eo est, ac fumidum, per has ipsas arterias læues effudit, & multo adhuc magis per magnam arteriam ad alias : quodq' hec, nequādo extinguat cordis caliditas à prauis exremētis suffocata, tuto prouidit. hymnis extollere ipsam conuenit. Nam, q' pulmonis carnem mollem, foraminulentam ac spirituosam fecit, ut externū aerem

He did *not* know the compound nature of common air, but he did understand and affirm, that a sort of digestion of air goes on in the lungs, by which we find some parts taking to themselves a pure aerated blood, others a grosser fuliginous blood. He did know that in the veins, and right side

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concoquat, quem familiarem spiritui animali alimentum futurum prouiderat, admirari eam par est. Quòd uerò & tribus uasis pulmonem contexentibus, una quidem uena, duabus autem arteriis, ad tracheas arterias totum spiritum attrahi instituit: & rursus illinc emitti nobis uocem emittentibus, ut diutissime loqui possemus continua inspiratione nō indigentes, ceu earum qualibet in multum tempus suffectura : in hoc rursus eam, ceu, id quod optimum erat prouidentem, laudare conuenit. Rem igitur ipsam ostendam, causamq' eius uerbis explicabo. Tuum aūt fuerit deinceps eorum opificem laudare, si demum laudum instarum non es inuidus. Quòd itaq' pulmo totam impleuit thoracis capacitatem : Tum q', si dilatetur thorax aut comprimatur, simul quoq' per totum pulmo dilatatur, aut comprimitur, ex commentariis, quos de motu eorū conscripsimus, didisisti. Præterea q' instrumentis omnibus, quæ attrahunt. consecutione quadam ad id quod euacuatur, prius quidē leue, q' graue, sequatur : Quodq' per ampliora orificia ea compleri sit facilius hec quoq' in illis didicisti. Et sanè q' asperarum arteriarum unum est orificiū maximum, pertinens ad pharyngem : lænium autem aliud unum in sinistrum cordis uentriculū. ut uenarum etiam in dextrum : Quodq' ex pharynge aer solus ad trachæas arterias, ex dextro uentriculo sanguis solus ad uenas, ex sinistro mistum quid ex ambobus peruenit. Si horum sanè omniū memor sis, ipsaq' omnia composueris, rei propositæ demonstrationem nullo negocio inuenias. Nam pulmone dilatato primum quidem id sequetur, quod est leuissimum (est autem id aer externus) implebitq' asperas arterias : secundum autem id, quod effertur ex sinistro cordis uentriculo, quod læues implebit : postremo uero horum omnium ac tertio, sanguis." lib. vii. cap. ix.

Galen was struck with admiration of the valves and their action." Plena ergo. artificii atq' admirationis est pericardios, atq' ipsa multo enim majis cordis orificia, quanto scilicet hæc majoribus subseruiunt actionibus. omnes enim propemodum cordis actiones per ea perficiútur.........Quod igitur cor, quo tempore dilatatur, membranaram trahens radices (dragging upon the laciniæ of the valves) aperit quidem intromittetium materias : uasorum orificia claudit autem educètium, dictum antea nobis est ac demonstratum nec minus etiam, quod trahentibus leuiora omnia expeditus obsequuntur : quodq' in aliis quidem orificiis membranæ tres incubant. *in arteriæ autem uenosæ orificio non item. quod eam solum excrementis fuliginosis, quæ a corde feruntur ad pulmonem, dare transitum oportebat* Ex his certe quispiam forte existimarit nihil penitus per tria reliqua vasorum orificia retro ferri : at non ita res habet. Nam quo tempore contingit membranas claudi, eo ipso prius sanguinem ac spiritum in cor tractum esse est necesse, atq etiam cum contrahuntur prius quam clausæ fuerint, rursus aliquid interea, dum clauduntur remitti." cap. xvi.—lib. vi. ●

He had the precise opinion which we hold as to the *nature* of the blood in the two kinds of vessels, the veins and arteries.—" Atq' *arteriæ quidem tenuem purum ac uaporosum participant sanguinem, uenæ autem paucum eundemq' caliginosum aerem.*" He appeals to experiment for his conclusions." Ad eundem saue modum ipsius etiam cordis ventriculi pulsare quidem utriq' thorace pátefacto videntur, non pari tamen mensura utrisq' sanguis et spiritus continentur. Copiosior enim multo est in dextro quidem sanguinis, in sinistro autem spiritus substantia." *Cap.* 16.

In the lungs he says again.—" Admirari igitur hoc loco conuenit natura prouidétiam, quæ simul duplicem nasorum speciem efficit, simul ipsorum fines sibi ipsis uicinos, mutuis inter se orificiis aperiuit, atque applicuit :"—Of the anastomosis of vessels generally he says—" Porrò, quam male animalibus consultum fuisset. si membranæ hæ non extitissent, præbeas te mihi, dum commemero, attentúm auditorem : pro hypothesi ad praesentem . quoque sermonem ea summam quæ alibi sunt demonstrata. *In toto corpore* mutuo est anastomosis, atq' oscillorum apertio arteris simul et uenis, transumunt ex sese pariter sanguinem et spiritum per inuisibiles quasdam atq' angustas plane uias. Quòd si os ipsum magnum vena arteriosae itidem semper patuisset, nullumq' natura invenisset machinà, quæ claudere ipsum, cum est tempestiuum, ac rursus aperire queat, fieri nunquam potuisset, ut per inuisibilia atq' exigua oscilla sanguis contracto thorace in arterias transumeret.........Nunc vero reditu per os magnum intercluso, dum coprimit undiq' destillat quippiam per exigua illa orificia in arteriis." *Cap.* 10. *Lib. VI. de Usu, Part. Galeni op.Edit. Frob. Fol.* 1562.

of the heart, this last carbonaceous blood only was found, whilst the left side of the heart and the arteries contain only pure and aerated blood ;—and he knew that the right side of the heart was made only for the lungs. He plainly states that the anastomosis of arteries with veins was contrived by provident nature in order that the influences of the pulse and respiration might not be limited to the heart and arteries, but propagated by this anastomosis to the veins themselves (*see* note p. 64.) He speaks distinctly of anastomosis of vessels in the lungs by which the transfer of aerated blood in part takes place, and again of general anastomosis of extreme vessels throughout the body by which transfusion of aerated blood takes place. These important facts had been forgotten when the real circulation through the lungs was discovered by COLUMBUS. So that GALEN could not follow out his discoveries to their legitimate conclusion, for although he reversed the circulation, yet in as much as he admitted a certain portion of blood to be forced into the arteries, the admission involves fresh and fresh supplies at each pulsation, and hence a circulation. But neither could COLUMBUS follow out his discoveries, for he was unacquainted with the anastomosis of vessels discovered by GALEN a thousand years before he wrote. COLUMBUS however," with the nicest exactness, explained not only the *structure* but the *use* too of every part belonging to the Heart, excepting a little mistake about some of the *Valves :* and did in as clear a manner, as words could express, shew, how by the contraction and dilatation of the heart and mechanism of its vessels, the blood circulates through the lungs from the *Cava* to the *Aorta*, (no body, as he says himself, having either observed this, or written any thing of it) and from thence into all the parts of the body. In his language (as to the sense, much indeed the same as we find in SERVETUS, a contemporary writer, though much more fully explained) the lungs are for generating vital-spirits, and this he describes in the following expressions. " The wind-pipe diffuses the air into all parts of the lungs: the lungs mix this air with the blood, which comes from the right ventricle of the heart by the pulmonary artery. The blood by this continual motion of the lungs is agitated, attenuated, and mingled with the air, which air itself by this collision and rarefaction is so prepared, that both the blood and air mixed together, are taken in by the branches of the pulmonary vein, and through its trunk conveyed to the left ventricle of the heart : and they are conveyed hither so well mixed and attenuated, that there is little more left to do for the heart : therefore after a little further elaboration here, which gives as it were the last hand to the vital-spirits, there remains nothing else than that the heart, by the help of the *Aorta*, should throw and distribute the blood into all the parts of the body." This is literally the sense of this inquisitive Anatomist, and we see how exactly consonant to truth his doctrine is: only he stops short here, and does not at all explain, how the blood flows from the arteries to the veins ; nay, it is evident from what he says in several places of those vessels, that he did not in the least comprehend any communication between them.

Were we indeed to reason from what these Writers say, concerning the circulation of the blood, both through the heart and through the lungs into the *Aorta*, the conclusion must demonstrably be, that the blood which goes into the *Aorta* must return back into the *Cava ;* else how could the constant current, which by their own account runs through the heart and lungs, be maintained? but it is as demonstrable, that they did not perceive this consequence, which naturally and necessarily follows from their own principles. Neither is this so much to be wondered at: for COLUMBUS and CÆSALPINUS might as well go so far, and no farther, as that ACQUAPENDENTE could discover and describe the *Valves* of the veins, and yet be at the same time ignorant of the true use of them: as it is very plain he was, from his own description of them."*

Notwithstanding the advances in chemical knowledge, and the laborious physiological researches instituted in every country of Europe, the subject of respiration is still full of difficulties, both as regards the elements imparted to the blood and tissues during this process, and those derived from them. I need only refer to the mass of contradictory evidence furnished by PROFESSOR MULLER,† and to his admission after all, of its analogy with combustion; to the celebrated theory of PROFESSOR LIEBIG, which identifies respiration with combustion; or the still more recent systems in which it is incorporated; to shew the little progress made since GALEN, seventeen centuries ago, arrived at the same conclusion; and supported it by experiments and by reasoning, if more simple, not less convincing, than those of our day. This much appears certain, we breathe out carbon, and absorb oxygen: whilst plants absorb carbon, and breathe out oxygen. The external development of plants and trees above ground, is in fact, the evolution of their respiratory system; the reverse of ours, as the function is reversed; but still both in its primary, and ultimate divisions, our respiratory system is well illustrated by that of a tree. We have a trunk (trachea), branches (bronchi), and leaves (air cells); in one case the development is towards the exterior, in the other towards the interior; the end aimed at the same, in both instances, namely, to obtain a wonderful extent of vascular surface in contact with air; so that a tree resembles, so to speak, our respiratory system turned *inside out.*

"The interior of the lungs, therefore,—omitting from consideration the bronchial tubes, arteries and veins,—may be regarded as a most extensive surface realised in a small space by folding of a membrane in the form of cells, this membrane containing a dense net work of capillary vessels. The process of respiration being effected by the contact of the air, which enters by the bronchi, with the inner surface of these cells, in the parietes of which the particles of blood circulate in most minute currents."‡

In the preparations of the MUSEUM, we may contemplate in the first instance, the arrangement and construction of the various parts of respiration in man; and observe their admirable adaptation to their end, before we consider the alterations and derangements, and even utter destruction, so far as their office is concerned, which they occasionally undergo in disease. In man, we see that the entrance to the air passages, the hall or vestibule, has many exits and entrances; and is so contrived, that the air is made, during expiration, to minister to the important offices of voice and speech; whilst, during inspiration, it pervades the whole distribution of the nasal mucous membrane, in order to effect the sense of smelling. Even the organ of hearing, through the Eustachian tube, is brought into relation with it. (See No. 700.) The mode in which these parts are varied, according to the habits and wants of different animals, may be studied in the MUSEUM OF COMPARA-

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* FREIND *History of Physick.* 2d Edit. London, 1726, vol. I p. 233.

† Elements of Physiology by J. Muller, M. D. &c. translated by Dr. BALY. 2d Edit. London, p. 310.

‡ Op. cit. p. 190, vol. I.

TIVE ANATOMY; No. 519, the whale—No. 740, the flamingo—No. 703, the alligator—No. 235, the woodpecker. In all of these, the greatest diversity exists in the canal, trachea, which conducts the air to the organs designed for its minute division, *i. e.* the lungs;—which canal is, in all these instances, made permanently *patent*, by means of cartilaginous rings. Whilst nature has shewn every possible mode, in birds, fishes, reptiles, and insects, of carrying out the principle of expanding a vascular surface in contact with air, by means of gills, and lungs; or bronchia combined with lungs:—the lungs themselves varying from innumerable elongated tubes, to a simple sac.

When the air arrives at its destination, the lungs, which are located in the chest; itself an admirable piece of mechanism for respiratory motion, the canal divides into two, one for each lung; these into smaller tubes, which are again subdivided;—the epithelium, and the mucous tissue being continued into the air vesicles themselves, or *the culs de sac*, in which the bronchial tubes terminate. This last, the *essential part* of the respiratory apparatus, is shewn exclusively in No. 392, and No. 217. These would lead one to conceive, that the lung was made up of nothing else but air cells. In No. 773, there is a far more fleshy appearance, and the mode in which the air cells have been injected, conducts us to our main subject, the pathology of the respiratory system.

" Destruction of the capillary net-work of the pulmonary cells and of the air-cells themselves by inflammation, suppuration, or structural degeneration, has two very important consequences: in the first place, diminution of the respiring surface, the effect of which may be imperfect formation of the blood, and at last wasting of the body: secondly, diminution of the number of channels through which the blood must pass, and, consequently, impediment to its course from the right to the left cavities of the heart, and thence to the general system. In warm blooded animals, in which all the blood must pass through the capillary system of the lungs before it can arrive at the great aortic circulation, any diminution of the extent of this pulmonic capillary system must be productive of impediment to the circulation generally; and, in patients suffering under pulmonary disease excessive action of the heart, tendency to congestion of blood in the lungs, disposition to inflammation of these organs, and feverish excitement, must be frequently observed. Any other organ might be wholly destroyed without the circulation being impeded in the other organs of the body, but the loss of a portion of the lung is a source of obstruction to the circulation generally; hence it is evident, that persons suffering with pulmonary disease ought to avoid every thing which might produce still greater impediment and excitement in the circulation."*

The most serious forms of disease in the respiratory system, the most common forms, viz. tuberculosis, and pneumonia, are thus explained; they consist essentially in the obstruction, or destruction, of the capillary net-work of the pulmonary cells, and of the air vesicles themselves. In ordinary tuberculosis, the tubercular matter fills up the cells, and then produces pressure, irritation, and destruction; by absorption or inflammation, suppuration or gangrene: (No. 793 shews this)—or permanent induration of its light spongy structure, with calcareous deposition. We may have superadded as accidents of pulmonary tuberculosis, pleuritis, bronchitis, empyema, hydro-thorax ; as well as disease of the heart. The co-existence of cardiac disease and phthisis, has been before stated, and commented upon ; and the law of necessity is now explained, in the fact, that a loss of a portion of the lung, is a source of obstruction to the circulation generally.

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* MULLER, Op. cit. vol. I, p. 192.

I am much inclined to think that tubercular matter itself is owing to a variety only of inflammation. It is certain, that a red glutinous matter, the direct product of inflammation, may fill up the pulmonary cells, forming the first stage of pneumonia. It may accumulate and distend them, may be evacuated in muco-purulent sputa, by re-solution ; or may break down their structure with pus, and form abscess ; which again may break forth into the pleural cavity, or even without this, excite pleuritis, bronchitis, hydrothorax, pericarditis, endocarditis, and structural disease of the heart. That pneumonia is not always a phlogistic kind of action, or inflammation of a sthenic nature, is certain ; for it will originate in the most reduced constitutions, and be ushered into existence, as the patient is hurrying out of it.

That there is an analogy in the conditions of constitution in which tuberculosis and pneumonia originate, and in their symptoms, as well as in the products of these diseases themselves, must be conceded. I have detected this first stage of pneumonia as occurring in a portion only of the lung, during the last feeble efforts of vital power, (see CASES, p. 79 and 295,) and after death, my diagnosis has been verified by examination. Yet whilst no one will dispute that these conditions were veritably those of inflammation; the more common form certainly, is that of sthenic pneumonia with high phlogistic action and fever. Now, although the general opinion of all modern pathologists and physiologists has associated tuberculosis with imperfect nutrition, and this same depressed vital power, of the constitution; still, no doubt *the act of deposition*, is connected generally with inflammation or fever. Every first access of general tuberculization is ushered in, with more or less of fever ; and successive attacks of fever and inflammation are followed by successive increase of tubercular deposition in the lungs. Moreover in INDIA the whole lung becomes tuberculized, with such remarkable rapidity, as to favor strongly this inference of *tubercular matter being a product only of the inflammatory state.* DR. GREEN says of the native prisoners labouring under pulmonary disease—

"I find that, after they have been working a few weeks or months on the roads here, and inhabiting the Jail, they have become the subjects of attacks of inflammation of the lungs, and from time to time of frequent repetitions of these attacks, which have ended in some cases in recovery, even after several such relapses, in some cases in death in the acute stage ; in others in a prostrate sinking state, with a gradual wasting away of the body, and all the symptoms, and ultimately all the post mortem, morbid, appearances of tubercular diseases of the lungs." His cases shew these gradations of one and the same disease, from one and the same cause.

In the case of a native woman whose lungs (No 1380) I examined, they were both equally, that is to say, throughout their whole substance disseminated with fresh soft tubercles ; the lower part resting upon the diaphragm, and these miliary bodies as closely and as largely developed as the top of both lungs. These certainly exhibited in this place, one or two calcarized masses about as large as half a pea. But the history of the case, would seem to prove, that the whole of this mischief had occurred in the space of a month or little more ; attended with the usual fever and excitement of common pneumonia. On slicing these lungs and squeezing the cut surfaces, the matter, whether we call it muco-purulent, or that of miliary tubercles, exuded like butter from the areolæ of a slice of bread. Indeed the distinction is occasionally so imperceptible, between cells stuffed up with thick mucopurulent matter, and those distended with the matter, of the so-called semitransparent, grey, miliary tubercles, in their early stages, that I have repeatedly had specimens in which I could not make out the difference as they were presented in the dissecting rooms. Now if these matters, the product of disease, be so like, that after death even, we cannot discriminate them ; if the symptoms be the same during life, and the cause the same, are the diseases actually different except only in the modifying influence of constitution—which in the robust and well fed will produce maturated plastic fibrinous effusion, in the weak, an ill-digested fibrine or tubercle ; in the exhausted indigent and feeble a mere sanious pus ?

What is the microscopic distinction between tubercular matter and fibrinous and purulent matter ? Dr. Carpenter says, "There is every degree of gradation between the *plastic* or *organizable* deposit of well-elaborated fibrine, the *caco-plastic* or *imperfectly-organizable* matter of tubercle, and the *aplastic* or *non-organizable* matter of pus. The microscopic examination of tubercular deposits shows, that they sometimes contain fully-developed cells and fibres, analogous to those of fibrinous exudation ; but that more frequently, the cells and fibres are imperfectly formed, and are accompanied by a large quantity of a granular substance, which strongly resembles coagulated albumen ; and that in many cases, there is scarcely any trace of organization in the mass. The greatest degree of organization is found in the semitransparent, miliary, grey, and tough yellow forms of tubercle ; the least in the opaque, crude, or yellow tubercle."* I conclude therefore that tubercle in the lung is a phase only of fibrinous inflammatory effusion.

But I find myself advocating an identity of substance, origin, and action, for these tubercular and inflammatory products, with facts derived from natives of INDIA ; whereas the existence of consumption at all, among natives of this country has been denied by the highest authority. I may as well remark then, before entering further upon the present division of INDIAN PATHOLOGY that great misconception prevails as to the extent to which, the respiratory organs become diseased in INDIA : partly owing to want of observations upon the dead, from the difficulties opposed to it by caste and custom; partly also, to defective observations upon the living, owing to the neglect of auscultation, which prevails here still. It is only in this way, that we can account for the erroneous deduction, derived from reports of Medical Officers, serving in INDIA, which MAJOR TULLOCH has thus recorded.

"Though consumption is so fertile a source of mortality in other colonies, both tropical, and temperate, and among every other race of whom our troops are composed, *the natives of India, and Ceylon present a singular exception*, not above one case of that disease having occurred annually among every thousand of them."†

Another recent writer upon tropical diseases, Dr. F. A. C. WAITZ, first lays it down as a theoretical principle, that there is less determination to the heart and lungs, in hot than in cold climates; and then makes a deduction, that diseases of the heart and lungs although not impossible, must be very rare ;

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* Manual of Physiology, London 1846. p. 367.

† Statistical reports of sickness, mortality, invaliding, for Ceylon by MAJOR TULLOCH, p. 45.

whilst he allows that the former are passed over in silence by all authors on tropical diseases. He says "Can this function of the lungs be as well performed within a hot, as a cold atmosphere? My reply is, that it cannot, and for two reasons. First, the air which is expanded by heat, is less elastic than cold air, and thus less fit to distend the *pulmonary vesicles* and dilate the chest by its entrance. Secondly, the more atmospherical air is expanded by heat, the more its *oxygen* is rarified, and its influence of course less in clearing the blood carried by the final branches of the *pulmonary artery.* In one word, the pulmonary capacity remains smaller and the *pulmonary dephlogistication* of blood is much slower from continually respiring a hot air. Such, in my opinion, leads to the following important modifications of human temperament."

1. Lessened determination of blood towards the chest.
2. Lessened sanguification and warmth of blood.
3. Substantial modification of blood.
4. Accumulation of blood in the umbilical region, and vena portarum.
5. Augmented secretion of bile, or increased hepatic dephlogistication of blood, in white bodies.

As soon as a child breathes, the blood, as we are aware, turns from the *umbilical* region and *vena portarum,* and flows with an increased impulse towards the heart. Hence it follows that, the more each respiration distends the *pulmonary vesicles,* the more it promotes the entrance of blood into the *pulmonary artery,* and the more it increases the afflux of blood from the *hollow veins* to the *right ventricle* of the heart. Inverting this theme, we are led to presume, that such kinds of sickness as have their origin from a too impetuous determination of blood to the *heart* and *lungs,* will be less frequent and less intense within a hot than within a cold climate. Observation favours this presumption. As regards hypertrophy of the heart, ossification of the valves and dilatation of the large arteries (aneurisma aortæ, arteriæ pulmonalis, etc.)—This species of morbid phenomena has been passed in silence by all authors on tropical diseases, nor have I ever discovered it in Dutch India.

As to pulmonary inflammation (pneumonia), spitting of blood (hæmoptysis), pulmonary apoplexy, suppuration and tubercular degeneration of the lungs (phthisis pulmonalis exulcerata et tuberculosa).—These diseases, though not impossible within the tropics, are nevertheless much less frequent than in variable and cold climates, as has already been mentioned in former chapters and been conceded by many writers."*

Now, in disproving a fallacy so injurious as this is to medical practice in India I will observe, 1st, that the dissecting rooms in the Bengal College of Medicine—from natives of every part of INDIA, have supplied a great part of the specimens of tubercular disease in our museum :—and 2nd, that the record of cases here given shews that phthisis, and pulmonic affections are at least not uncommon diseases among natives of INDIA, and only yield in frequency to fever, cholera, and dysentery and spleen ; presenting every form and variety that is to be met with, in any other part of the world. True it is that this great family of diseases of the respiratory organs, like those last recorded of the heart and circulation, will be sought for in vain, in any work upon INDIAN diseases with which I am acquainted ; but, alas, most true it is, that they exist here nevertheless.

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* On Diseases incidental to children in hot climates, by F. A. C. Waitz, Bonn, 843., p. 59, a work abounding in valuable information.

In considering these preparations together, with reference to the proof which they afford that every modification of disease of the respiratory organs common in Europe, is found also in India, we may at first inverse the usual order, *beginning with that which is most essential—the air cells.* In Nos. 243, and 244, the air cells are filled with serum, (*œdema*) the lung unfit for respiration. In Nos. 285, and 376, they are filled with tubercular matter, (*pulmonary tuberculosis*). In 261, and 544, large cavities are superadded (*vomicæ.*) In No. 1005 we see the air cells ruptured, *emphysema of the lung.* In No. 622, the cells are diminished from inflammation of their lining membrane, also in Nos. 778, 779, in which the cells are filled up. In No. 638, no respiration could go on, owing to injection or infiltration of their tissue with blood (*pulmonary apoplexy*).. In Nos. 778, and 779, inflammation has taken place, effusion of lymph has isolated and confined masses of the tubercular matter, which has however escaped at one point through the pleura. The fatal consequences of this accident is further illustrated in Nos. 621, and 641. The utter annihilation of the air cells, and conversion of the lung into a substance like liver, (*hepatization,*) so like, as hardly to be distinguished from it, (compare with No. 339,) is shewn in No. 288. No. 641, shews us the destruction of the lung from *abscess,* and its compression, and that of the heart, from pus effused into the chest, (*empyema.*). Another fine specimen of abscess is seen in No. 555.

Diseases and accidents of the passages leading to the lungs are also shewn; the more common lesions from wounds or inflammation in Nos. 662, 548, 677, 549, and 395, and further illustrated in the CASES. In No. 832 a slough has opened the cheek like a musket ball. No 843 shews a large worm pressing upon the glottis. In No. 1313, is seen the pressure of carotid aneurism, upon the air passages :—the effect of fish bone and presence of abscesses, in No. 1325. The total destruction of the air tubes in No. 1353, by sloughing.

Inflammation of the serous covering of the lungs, the *pleura* (pleuritis) is shewn in Nos. 252, 244, 621, and 641. Ulceration, or sloughing of this membrane, in Nos. 641 and 778. Gangrene of the lung, or the death and destruction of all its component parts, is seen in Nos. 998 and 1002.

There are besides some other diseased conditions, and those most common in this country, which like cholera leave no organic traces, or such as cannot be perpetuated in the preparation, or part itself. The mucous membrane of the air passages, is but a portion of the great gastro-pulmonary mucous surface. Like as the portion which lines the intestines is subject to greatly increased secretion, in diarrhœa, so is this also, subject to an analogous affection in the severe influenzas of Bengal, as well as in true humeral asthma, or chronic bronchitis; which last I have seen in children, of from five to thirteen, and chiefly girls, produce one or two pints of muco-purulent sputa, in twenty-four hours. I have seen this affection also, in old Indian residents of sixty, *alternate with diarrhœa.* The latter disease suddenly checked, has resulted in this most formidable metastasis, with imminent hazard of death from suffocation.

I have seen the sputa in this disease, so like that which occurs in tubercular phthisis, as to have completely misled the judgment of medical men, even, regarding the nature of the case ; added to the night sweats, and debility ; whilst the mechanical diagnosis, as shewing obstruction to admission of air to the lung, served rather to confirm than to rectify the error. In one case of this kind, which I attended in 1836, Captain C. —— N. I., was declared to labour under phthisis, by the written certificates of several Medical Officers. But I had the very great satisfaction of discovering the source of error, in this very disease, by its shifting character, sometimes attacking one bronchial tube, sometimes another; its want of permanence proving the obstruction to be something else than tubercular matter. This excellent officer is now living, his fine health attests the truth of the views I then had formed upon his case.

The mucous membrane in this disease, examined after death, only offers evidence of relaxation, slight softening, or swelling, scarcely appreciable when macerated in spirit; or not more than would the intestinal mucous membrane after diarrhœa, or cholera. The same remark applies to pertussis, and croup, which are both very common. The latter is a most frightful disease, attacking the strongest children, and attended with the most agonizing, and convulsive efforts at respiration. It comes on quite suddenly, often in the middle of the night, and requires prompt attention, and careful watching for real inflammation of the larynx is apt to follow it. In common cases however all this hard, barking clangor, disappears after an emetic and a sleep.

When congestion of the lungs and air passages takes place, in phthisis, from the obstruction which the blood meets with in its return to the left ventricle, hœmoptysis is not uncommon, as recorded in one case; but no other organic trace of such exhalation, or capillary hemorrhage remains, than is seen in dysentery occurring in typhus fever,—or even in some forms of the idiopathic disease itself; unless when a vessel gives way from ulceration.

The manner in which disease of the proper structure of the lung affects the circulation generally, is of great importance to be remembered. The effect of such obstruction upon the heart has been already alluded to. Upon the liver also it exerts a most pernicious influence, which will be explained in the remarks upon the pathology of that organ.

In the CASES attached, every great alteration, impeding the office of the lungs, has been traced during life, its amount ascertained, its daily increase or daily decrease for the most part stated; whether the lung is squeezed from without, or stuffed up within, or destroyed, or wounded, its state has been fully appreciated, and some of its more disastrous effects preserved in the specimens in the museum.

I am indebted for further facts upon this subject to that kind and liberal assistance, which during the prosecution of this work, I have so frequently experienced, from the Medical Board of Bengal. My thanks are specially due for the report of DR. E. GOODEVE, Superintendent to the Cawnpore Dispensary, ending 31st July 1845, relative to the frequency of pulmonary disease and consumption in the upper provinces of HINDOSTAN. I have myself observed these diseases extensively among the HINDOO race, the PUHARREES, inhabiting the lower belt of the Hymalaya range of mountains. And the observations of my friend Dr. GREEN, to whom INDIA is so much indebted for most valuable pathological researches, prove its prevalence in the lower provinces of BENGAL, also; and favour if they do not establish the inference I have ventured to draw, of tuberculization and hepatization of the lungs, being grades only of the same disease, produced by similar causes, in men shewing no predisposition, whatever, when placed under the same untoward circumstances. Tuberculosis seems to me only one form or grade of the general disease pourtrayed by DR. GREEN; who has kindly allowed me to publish his paper also, so that with that of DR. GOODEVE's and my own published observations, we have complete evidence of *the existence generally of pulmonary disease in India; from the Delta of the Ganges to the Hymalaya.*

DR. E. GOODEVE'S REPORT ON THE PREVALENCE OF PULMONARY DISEASE IN UPPER INDIA.

BABOO RAMNARAIN has alluded to the introduction of auscultation in investigating disease, since my superintendence of the Cawnpore Dispensary. I may remark that the great frequency of thoracic complaints among the natives of these districts, renders attention to the condition of the pectoral organs absolutely necessary, both for accurate diagnosis, and for the consequent benefit to the patients. The abovementioned frequency of pulmonary complaints, has been forced on my notice by a large number of post mortem examinations at the jail and dispensary. We make it a rule therefore, to examine the condition of the chest, in all cases of chronic diarrhœa, dysentery, the so-called remittent, but frequently hectic fever, and in continued fevers in the cold season. The patients often make no complaints of chest disease themselves, their attention being concentrated on the symptomatic fevers, diarrhœas, or failure of strength. It is necessary to question them closely, to watch the general symptoms of lung affections, and generally to resort to auscultation, before coming to a conclusion as to their real complaints. Within twelve months we have met with every form of pulmonary disease, except the malignant ones, *and many of the diseases of the heart. Tubercular phthisis we have had an abundance of, as the detailed autopsies forwarded every month show.*

In the cold season pneumonia, and broncho-pneumonia were prevalent. The patient complained mostly of continued fever, he made light of the little dyspnœa, and cough that accompanied his complaint; and as the pleura was not generally involved, there was little or no pain, to draw his attention to the chest. We found careful auscultation of great use here, in directing the mode of treatment. This consisted in bleeding in the early stage, when the patient's strength allowed, calomel carried to ptyalism, if necessary; and large doses of tartar emetic, some of the patients took 15, or 20 grains of it daily for two or three days without any inconvenience whatever. If the complaint had passed into the third stage or the bronchial tubes were loaded with secretions, of course a stimulating plan was adopted, and carbonate of ammonia was found most useful.

Asthenic pneumonia we have frequently met with, among the weak, and the old. In these cases, diarrhœa, dysentery, or perhaps some form of sloughing sore, and great prostration, were the principal symptoms. A very careful inspection would show that there was some dyspnœa, from the slight dilatation of the ala nasi, and some heaving of the chest. The breath had a fetid smell, but not amounting to that produced by ordinary gangrene; auscultation was here of considerable assistance. In the post mortem examinations, we found consolidation of parts of the lung, but the colour was darker, sometimes approaching more to brown, or muddy color, than the consolidation of sthenic pneumonia; while the third stage, or grey softening of the sthenic kind, was replaced by cavities containing mud-coloured fetid serum. The disease was most frequently found in the posterior parts of the lungs, but this was by no means always the case, as I have found both consolidation, and cavities near the nipple. When pleurisy is excited in this form, the lymph exuded is deficient in plasticity, and the adhesions that the lung forms with the parietes are easily broken down. In these cases antiphlogistic treatment cannot be thought of, stimulating medicines are alone of use. When the disease is circumscribed, which it seldom is, these means, I think, I have known to produce great benefit, if time be allowed for them to be followed up by tonic medicines. I have generally found this complaint to arise in the ill fed, and ill clad. The existence of chest diseases in such numbers, will throw some light on the reason of the mortality which so constantly attends dysentery, &c. in the natives.

Thus a certain want of plasticity in the lymph effused in this asthenic pneumonia, is observed by my friend Dr. E. GOODEVE ; ruinous softening and breaking up of the pulmonary tissue or gangrene ensues, no limitation can take place. This is the commonest form of pneumonia which, I have observed in the ill clothed, and worse fed natives, of lower Bengal, in the cold season. And it is well to remember, (for I have seen ignorance of it fatal,) that *there is a pneumonia which the lancet cannot cure.* I recollect a case in point, of an old Indian general officer, upon whom most vigorous *coup sur coup* venæsection was tried, and persisted in to the very last. He was thought to have died then, only *for want* of more bleeding. I remember another general officer who persisted in MORISON's pills (*by advice*) to within a few days of his death, and even after colliquative diarrhœa had come on ; and then it was said that he died because he took not enough of them. One designation will serve for the practise in both cases.

But it is in truth an important practical question to determine whether pneumonia is, or is not, capable of producing, 1st ;—a sanies, which appears to corrupt the parts around, 2d ;—pus, which may break them up ;—3d, muco-purulent matter, by which resolution can be effected, 4th ;—tubercular matter, which may partially limit the mischief, or 5th ;—plastic fibrine, which shall consolidate a part and leave the rest of the pulmonary structure sound. It is practical, for our practice should be guided, by the constitution, which will alone determine the kind of action which ends in these results, as acute pneumonia, tuberculosis, bronchio-pneumonia, and asthenic-pneumonia or gangrene.

I wish to give Dr. GREEN's excellent observations consecutively and without interruption. I will therefore only premise here, that CASE No. I. is the most sthenic pneumonia, the lung most solid with interstitial yellow granular deposits. No. II. shews the three grades conjoined, of membranous fibrine, tubercular fibrine, and puriform, or aplastic fibrine ; the expression "softened tubercular *or other matter*" shews how difficult is the distinction between these phases of fibrine. In Case III. we see chiefly serum effused. About two years ago this form of pneumonia, terminating in œdema, was epidemic at Delhi ; and very fatal. Cases IV. and V. shew pneumonia in its worst degradation, producing mere *aplastic* fibrine or sanious pus ; no barrier to the spread of the disease and gangrene or the death of the parts resulting. In the preliminary sketch to the cases of tubercular disease of the lungs, we have presented to us, as characterising it, both the general signs and also the stethoscopic signs, of latent pneumonia. Thus there are precisely the same symptoms indicated in both forms of disease, so true is it, that an inflammatory consolidated state of the lungs exists in both, before cavities form. In case VII. it is distinctly stated by Dr. GREEN that the inflamed mucous surface of the bronchial tube exuded pus, and tubercular matter, which were found together ; the tubercle having probably been formed first at a time of less depression, the pus with less fibrine subsequently, when the vital power was still further diminished. From the experiments made by injecting lungs that had not respired, as well as from observation of tubercular disease I had in the former edition stated my opinion that the seat of tubercle was in the air vesicles themselves. DR. GREEN arrives at the same conclusion, which is further confirmed by microscopical examinations especially those of MR. RAINEY.

"That gentleman has, we think, incontrovertibly shewn the truth of the opinion of Carswell and others (and adopted by Hasse), that the common opaque *yellow tubercle is thrown out into the cavities of the air-cells.* In proportion as these become distended by the accumulating tubercular matter, the inter-cellular vascular plexuses become compressed, obliterated, and eventually destroyed, together with the walls of the air-cells. In this way several cells are thrown into one, several tubercles become amalgamated into an irregular mass, penetrated here and there by the crescentic edges of the partially destroyed cell-walls, and on careful examination, presenting occasionally detached fragments of the remains of the intercellular plexuses and their corresponding cell-walls. We have thus two important causes of derangement of the respiratory function. Not only is the supply of blood to one part of the lung cut off by the obliteration of its vessels, but also an almost necessary congestion of adjoining portions induced, and thus a tendency to hæmoptysis established.

The following passage from the postscript to Mr. Rainey's paper in the last volume of the Medico-Chirurgical Transactions, is so important in connexion with the general pathology of tubercle, that we shall be excused for extracting it. A rabbit, whose lungs, liver, kidney, mesentery, and other parts presented numerous tubercles, all of a scrofulous character, was injected with fine injection.

"Some parts of the lungs were studded with white masses of different sizes, others, even as much as a third of a lobe, appeared very much like a lung which had never respired. On examining the latter, I perceived, in the arterial trunks leading to those parts, distinct masses of white granular matter mixed with the injection: and, continuing the examination I found that this appearance was due to all the capillaries being literally choked up with this same matter. The air-cells were free from it and contained air. The white masses in the other parts, appeared to be produced by the vessels being filled with this matter, as in the preceding, and also by its escape into the air-cells and surrounding structures. On examining the kidney I found that the vessels were filled in the same manner as in the lungs. I mentioned this to Mr. Quekett, who told me that he had, in scrofulous cases, seen strumous matter mixed with blood which had been pressed out from an artery going to a diseased part."*

ACCOUNT OF PULMONARY DISEASES TREATED IN MIDNAPORE JAIL

from March 1st 1844 *to May* 31*st* 1845.

(*By W. A. Green, Esquire, Civil Assistant Surgeon.*)

Having met with an unusual amount of disease of the lungs in the Midnapore Jail, principally in the form of pneumonia, with a few cases of phthisis pulmonalis and bronchitis or asthma, indeed, to a very much greater extent than I have before witnessed in other districts within the different climates of the Bengal Presidency, and much exceeding in quantity the same class of diseases as they occur in two neighbouring Zillahs, where I have recently made inquiries, I am induced to commit to paper the few following facts and observations as matter of interesting medical statistics. It is something contrary to current and generally hitherto entertained notions, to hear of the association of a large proportionate amount of pulmonary disease, with the different diseases incidental to a given number of men under a tropical climate; to find pneumonia, and phthisis pulmonalis, rivalling in numbers fevers and dysentery; —and yet, before coming to Midnapore, as well as since, I have found in the course of my experience, delicate native students, not unfrequently, the subjects of phthisis and bronchitis.

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* London Medico Chirurg. Review, July, 1846, p. 182.

Laennec says, " Pneumonia is rare in equatorial regions," it is certainly not so in tropical Midnapore. I annex a tabular view of the pulmonary diseases, as these have occurred during the last fifteen months; together with a brief description of the manner of their occurrence, of the symptoms and post mortem appearances, with a few data as to soil and climate: hoping that some light may thereby be thrown upon the history and character of tropical pneumonia, and phthisis, as occurring in the native constitution; as well as upon the yet undetermined nature of the early morbid process in phthisis pulmonalis.

First, I would speak of the construction of the jail as a very material item in the list of causes of the prevalence of pulmonary disease at Midnapore. The building used as a jail is an old Fort, with a high entirely closed wall, extending the whole circumference of it; and consequently without the very necessary allowance of a free current of air through the rooms and grounds, the inclosed area moreover, is parcelled off into separate spaces by high walls; which must still further obstruct the circulation of air; the ground itself is rock. So that the heat during the day, (remaining too through a great part of the night) in the comparatively dry climate of Midnapore, radiating and reflected from the walls, and surface of the ground, unmoderated by the passing breeze, may be imagined to be very great; as it really is. Ventilators, it may be remarked, have been opened out of the roofs of the different wards.

The contrast afforded by the few in number of cases of pulmonary disease met with amongst the prisoners in the Bancoorah jail, where the climate and soil assimilate to those of Midnapore, but where the jail is an excellent one, plainly marks the pernicious construction of the Midnapore building for the purposes to which it is applied. The exciting causes of the disease may probably also be found without the jail, for I find upon inquiry that, in the rocky parts of the Zillah, cough is prevalent. With regard to the soil of the high ground, upon which the station of Midnapore stands, it is clay-iron-stone; its precise geological character and site I am not able to define. Upon a rough analysis I have found the rock to contain 23 per cent. of oxide of iron, the well water not chalybeate. The roads of Midnapore (which are most excellent) are made of the same rocky material, found in the shape of gravel. The atmosphere is comparatively dry, as is shewn by the accompanying meteorological table,* and this I take to be a consequence of its traversing, and lying over, a heated metallic ground. It is highly probable as a mere matter of reasoning, that the exposure of the prisoners, in their daily out of door labor, to such an atmosphere, freighted with heat from an iron-bound soil, and permeating the delicate vessels and air tubes of the lungs, would be a fertile source of mischief; aided by the additional evil, of the confined air of the jail at night. There may be an analogy in mischief, between the effect upon the minute texture of the lungs of this heated air, and those baneful effects of mineral and other dust floating in the manufacturing atmosphere of Sheffield, as described by Dr. Holland. Independently of argument upon the subject, as the result of my experience of Midnapore. I consider its climate to be inimical, where there is a diseased tendency in the lungs. For a great portion of the two last years, a large part of the prisoners have been employed excavating a noble tank, out of the rock. During the work their exposure to heat and dust has been necessarily very great, and the hospital returns shew a decided increase of pulmonary disease during the period.

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* At the end of this report.

As the ground-work of the opinion, of the local origin of this prevalent disease amongst the prisoners at Midnapore, and assigning for its causes the ill-ventilated jail, and the prisoners working at the red hot soil, it may be stated; that, after a careful examination into the early history and origin of the cases of this disease as they have occurred, I have been led to the conclusion, that many of the men thus affected, were previously hale, and capable of earning their livelihood; and were not subject to cough before imprisonment. I find that, after they have been working a few weeks or months on the roads here, and inhabiting the Jail, they have become the subjects of attacks of inflammation of the lungs; and from time to time of frequent repetitions of these attacks, which have ended in some cases in recovery, even after several such relapses; in some cases in death in the acute stage: in others in a prostrate sinking state, with a gradual wasting away of the body, and all the symptoms, and ultimately all the post mortem morbid appearances of tubercular disease of the lungs. Thus, in reviewing the cases of undoubted phthisis pulmonalis, whether following upon the inflammatory symptoms above alluded to, or not, I find that, of nine prisoners, suffering under the disease, the dates of whose different admissions into Hospital for various complaints I have extracted from the Hospital Register;—in one, pulmonary symptoms were developed on the fifth time of admission, after having been a prisoner for nearly 12 months;—in another, the prisoner worked on the road for 2 years before complaint;—in a third, he appears to have been well during the first four months of his imprisonment before the symptoms shewed themselves:—in a fourth, he was well during the first year in jail, and frequently ailing with fever during the three next, up to the manifestation of the disease at the end of this time;—in a fifth, pulmonary disease appeared at the end of the second year of imprisonment;—in a sixth, the prisoner worked well for nearly two years:—in a seventh, he remained well in jail performing his daily labor 6 months, and the tubercular disease was not suspected until after the eighteenth month of imprisonment:—in an eighth, after 3½ years confinement, the prisoner having been meanwhile subject to attacks of fever, the disease was first suspected;—in a ninth, although frequently in hospital with fever at times during 8 months, yet disease of the lungs did not shew itself by evident symptoms until the eighth month of imprisonment; this man may have brought with him the seeds of the disease, but, says he was able-bodied and well at home. In these cases it may be impossible to define the precise period of the setting in of the morbid tubercular disposition, or the date of its latent commencement; yet, the disease in these cases has evidently been nurtured by, if not the growth of, the jail, &c. With regard to the existence of any predisposing taint or tendency in the more acute case of pneumonia, &c. there appeared no evidence of such, either in the living symptoms, or post mortem appearances; the men having worked well up to the time of the attack.

The different Pulmonary diseases as they have occurred at Midnapore, for 15 Months, from March 12, 1844 to May 31st 1845, thrown into a tabular form.

	DISEASES.										PNEUMONIA.				PHTHISIS PULMONALIS.	
	Phthisis Pulmonalis.	Pneumonia.	Bronchitis.	No. admissions Thoracic Diseases.	No. total admissions into Hospital.	No. prisoners in Jail	No. deaths from pulmonary disease	Per-centage of pulmonary disease out of total sick.	Per-centage out of total prisoners.	Relative proportion of each disease to total prisoners.	Per-centage of deaths.	Average length of disease in 160 cases of recovery.	Average length in fatal cases.	Ages of fatal cases.	Average length of disease in fatal cases.	Ages of fatal cases.
1844																
Feb. ...	1	0	0	0			Pneumonia 12 ; Phthisis Pulmonalis, 7	8 pr. cent	13 per cent	Phthisis, in 1022, Pneumonia, in 82, Bronchitis, in 1431	7 per cent	18 days	28 days	10 to 20 ... 1 20 to 30 ... 3 30 to 40 ... 8 40 to 50 ... 1	112 days	20 to 30..3 40 to 50..3 60 to 70..1
March	0	2	1	3												
April	0	7	0	7												
May ...	1	2	0	3												
June...	1	7	0	8												
July ...	0	1	0	1												
Aug....	0	3	0	3												
Sept.	2	15	0	17												
Oct. ...	0	22	0	22												
Nov....	0	13	0	13												
Dec ...	0	37	2	29												
1845																
Jan. ...	3	24	1	28												
Feb. ...	1	19	1	21												
March	0	21	1	22												
April...	2	8	3	13												
May ...	3	4	1	8												
	14	175	10	199	2339	14313	19	8	13		7	18	28		112	

. The preceding table shews the great amount of pneumonia, although some of the reckoned admissions are relapses upon former attacks in the same individual ;—and the repetition of these leaves unmistakeable evidence by auscultation of the presence of organic disease : and tubercular deposition, as mentioned above, is often one of the results. The very general conjoint occurrence of pleurisy with the pneumonia, is shewn by the post mortem appearances. Many of the cases are, I believe, on the first attack, cases of pleurisy, being accompanied by the characteristic hœgophony and stitch ; and are commonly relieved at once by copious bleeding, and grain doses of tartar emetic ; but, upon relapses of these attacks, pneumonia becomes superadded.

The general symptoms of the pneumonia, observed amongst the Bengalee prisoners, are, rapid pulse, a dry burning heat of skin, (this is the diagnostic sign mentioned, I think, by Addison) with daily exacerbations of heat, early and extreme prostration, hurried breathing, which is sometimes only discovered upon close observation, tongue early becoming dry, excessive thirst, cough, pain in some part of the chest, although this symptom is often strenuously denied ; pain in the chest is often complained of from lying on one side ; glairy, tenacious, often muco-purulent sputa. There seems to be an absence of pain in the chest, when the lungs on one side only, are severely implicated. In many of these cases, when pain in the chest is altogether denied, and when the cough is not troublesome, auscultation is of the greatest use in forming a diagnosis ; discovering often, in such cases, a crepitating sound during respiration, as well as indistinctness and hoarseness of the respiratory murmur, indeed, sometimes total absence of its sound ; tubular bronchial respiration ; strong resonance of the voice in the larger bronchial tubes, or ronchus gravis and sibilans are heard ; sometimes dulness, on percussion over particular parts.

The following is an example of the kind of cases we have to deal with in the Jail Hospital, and shews well the usual suddenness of invasion, the rapidity of progress, and the insignificant, common, local, thoracic signs.

PLEURO-PNEUMONIA, ENDO-PERICARDITIS.

Case 1st. G. D. prisoner, age 24, was admitted into Hospital on the 15th April, and died on the 21st instant following. He had not been in Hospital for a year previously, was at work in the rock the day before admission. The disease in all probability had been coming on for several days. He was bled directly to faintness, the blood was buffed and cupped. He early became completely prostrated by the disease, suffered daily accession of fever, hurried breathing, cough, denying all sense of pain in the chest, violent action of the heart was observed externally. During the two last days he was delirious, and incoherent, loudly so at times. A sense of giddiness, and inability to hold up the head, is a common symptom in extreme cases of this kind.

Post mortem appearances, (briefly.)

Head.—A turgid, gorged state, of the sinuses of the brain, and of the feeding veins on the superior surface of the hemispheres, an injected pia mater, the arterial branches of the circle of Willis, and the minute ramifications dipping into and amongst the cerebral substance, largely distended with blood.

Chest.—Left side. The prominent condition was that of the first stage of pneumonia, or engorgement; the texture of the lung more solid than it should be, the inferior lobe of the same, side in the second stage of inflammation, hepatized, the structure easily breaking down beneath the pressure of the fingers; exhibiting interstitial, yellow, granular, deposits, and pouring out a frothy mucus: pleuritis of the pulmonary pleura, and of the layer covering the pericardium, tenacious, thick, yellow layers of exudation observed lying on the pleura pulmonalis. The pericardium very much thickened partly by layers of fat, partly by this same yellow membranous exudation, adherent in front to the thorax. The pericardium adhered internally to the heart by short fibres; in some places, the reflected pericardium covering the right ventricle yellow, opaque, thickened; firm coagula within the cavities of the heart, the muscular part of the right auricle appeared hypertrophied. Right lung:—no pleuritis, in a state of engorgement, the divided surfaces of a dark purple color; pressure upon the divided lung eliciting a reddish frothy mucus, as well as pus, from the divided bronchial tubes.

PLEURO-PNEUMONIA—BRONCHITIS.

Case 2d. N. L. prisoner, age 35, was admitted into Hospital on the 4th April 1844, and died on the 11th. He had not been an inmate of the Hospital for twelve months previously, suffered under all the symptoms mentioned in the first case.

(*Examination six hours after death.*)

Chest.—Left Lung:—Front, and above, lung sound; lower down the lung consolidated, its divided surfaces exhibiting interspersed white points of softened tubercular or other matter, pouring out also from the divided bronchial tubes a thin frothy pus; the lung sinking in water; the bronchial mucous membrane of a dark red congested appearance; the lung behind more consolidated throughout than in front; stringy membranous adhesions between the pleuræ in places. *Right side:*—marks of pleuritis, jelly-like ropy adhesions also, of an infiltrated membranous character! between the pleuræ situated inferiorly. About 3 oz. of reddish serum within the cavity of the pleura, the lung bound down to the spine by a thick tough pleura 1½ line in thickness, thus preventing the expansion of the organ;—the lung not unhealthy otherwise.

HYDROTHORAX, PLEURO-PNEUMONIA.

Case 3d.—Hydrothorax combined with pneumonia. The attack sudden in a man 40 years of age, who had not been in Hospital previously for four months, now admitted January 22, 1845. He had on admission, œdematous legs, with puffy swollen face. The history he gives of himself is that he has felt ill for ten days, having lost his strength and appetite, and been unable to sleep. In the course of a day or two, in Hospital, the anasarca increased in his legs and over his body generally. His breathing now became oppressed, obliging him to sit up, with his head inclined forward; he had a smothered scarcely perceptible pulse; cough;—frothy, mucous, and slightly colored expectoration. Auscultation and percussion indicated water within the chest. January 28; be had an attack of fever with all the symptoms of pneumonia, increased cough, difficulty of breathing, and pain in the chest. February 1st, he expectorated blood—February 2nd, he died.

Post mortem Examination.

Thorax, left side. The two pleuræ, superiorly, closely adherent together, without much thickening of the membrane. Left lung consolidated, its divided surfaces of a very dark color, pouring forth frothy mucus : more than a pint of serum found in the bag of the pleura. *Right side* no adhesion, between the pleuræ. Lung superiorly and in front healthy. The dependent parts consolidated and inflamed, less so than the left lung, upwards of a pint of serum in this side also. *Pericardium* contained about one ounce of serum, left ventricle hypertrophied.

Abdomen.—Ascites—Liver of a nutmeg appearance on division, pallor of the serous membranes generally, spleen somewhat soft.

TREATMENT OF PNEUMONIA.

The class of Bengal prisoners is for the most part a cachectic body, bad at the core, with very feeble powers of life comparatively ; so that a copious bleeding often prostrates and whitens them for weeks ; and this is particularly the case with many of the inmates of the Midnapore Jail, brought from the salt marsh on one side, and the stifling jungle on the other. Nevertheless, when warranted to do so, I bleed at once: apply leeches and cupping to the chest frequently ; blister without mercy; and give repeated grain-doses of tartar emetic. If the disease prove protracted, I give repeated doses of calomel, and use mercurial unction to salivation. In pneumonia, as well as in dysentery, I have repeatedly observed a favorable change in the patient coincident with the mercurial affection of the mouth.

GANGRENE OF THE LUNG (LAENNEC.)

I have met with another, and somewhat different class of cases, in which the inflammation appears to be of a more chronic character ; cases that would generally be classed as phthisis pulmonalis, but, in which the morbid condition found after death appears to be gangrenous, rather than tubercular.

ASTHENIC PNEUMONIA.

Case 4th. K. L. Prisoner, age 20, has been in Jail nearly 2 years, during which he has been in Hospital repeatedly, but only for a day or two at a time ; admitted this time, April 12th, 1845, and died on the 6th May. He was losing flesh upon admission. Whilst in Hospital he complained principally of weakness; pulmonary symptoms indeed were not noticed for several days, as he stoutly denied all pain in his chest. It was soon however observed, that he had a rapid pulse, daily accessions of heat, cough, increasing emaciation and prostration, his expectoration being extremely fœtid, loose, floating, muco-purulent, of a granular appearance : still the breathing appeared to be little affected, he slept well and made scarcely any complaint of himself, to the last, his tongue remained moist.

Autopsy.

Post mortem examination performed by the native Doctor in my absence, and therefore not very satisfactory, but said to correspond closely with the appearances in case No. 5 examined by myself. The native Dr. who has inspected numerous diseased lungs, describes having found on the *left side* of the chest, the central part of the lungs exhibiting at their cut surfaces, the appearance of liver, somewhat of a pale color, and hard, sinking in water, discharging frothy mucus and pus. A small cavity was found, and a number of small hard tumors in the central parts of the lungs; the dependent parts of the lung of this side, exhibiting the first or congestive stage, of pneumonia *Right side* a large cavity found in the centre of the lungs; filled with pus and corrupted pulmonary tissue and blood, the surrounding lung of a dark, and somewhat leaden color, consolidated, easily breaking down, pouring out frothy mucus.

GANGRENOUS PLEURO-PNEUMONIA.

Case 5th. S. S. age 42, a prisoner in Jail of a year: until the present admission has not been in Hospital for 6 months previously;—a robust man until very lately; admitted into Hospital March 26, 1845, died May 10, 1845. Upon admission he suffered from fever and cough,—the cough became masked, removed for the time, by dysentery, which indeed appeared to be the prevailing disease; although, in all these instances, attentive auscultation left no doubt as to the existent morbid condition of the lungs. For many days preceding his death he did not complain of pain in the chest, nor was his cough troublesome, he had no febrile heat of body:—he became more and more emaciated day by day, and gradually sunk.

(*Examination* 16 *hours after death.*)

Chest—Left side extensible membranous adhesion between the pleuræ of the upper parts. Lung upon incision of a florid color, pouring out a red frothy mucus. The lower parts of the lung covered by a much thickened pleuræ and adherent to the ribs, the lung here consolidated, in places like liver, breaking down under the fingers; in other places, of a dark leaden color, vascular lines of blood vessels perceptibly ramifying through it; the testure softened, apparently degenerated and mixed with pus, evidently advancing towards the formation of a cavity (said by the native Doctor to present the appearances of the other case No. 4, which he examined.) Parts of this diseased lung, where not already softened, somewhat dry and free of mucous exudation. The mucous membrane of the minute bronchial tubes of a dark purple color, pouring out thin, sanious, purulent secretion. Lung sinking in water. *Right side*, front parts healthy, posteriorly a florid inflammatory and somewhat consolidated state observed upon division; not sinking in water, pouring out a red frothy mucus freely.

Abdomen.—Large bowels inflamed throughout, the mucous membrane spotted red and black, much thickened; its surface irregularly smeared with a covering of thin pus. Some of the dark spots on its surface somewhat raised, having the appearance of cicatrices of ulcers, and solid upon incision. The rectum in places honey-combed, with small excavated ulcers, muscular coat of bowels hypertrophied.

BRONCHITIS.

With regard to the bronchitic or asthmatic cases, with their attendant profuse, frothy, thin, mucous expectoration, and loud whistle or squeak, heard by auscultation; the inveteracy of these cases, the frequent paroxysmal returns of the disease, the difficulty of eradicating it, all point out something in the local circumstances of the prisoners, favoring the obstinacy of the complaint. *Treatment*—I have found the promotion of free secretion by expectorants, and the use of opium and antispasmodics during the paroxysms, as well as previously, in anticipation of them, afford most relief. Sulphas : cupri copio is efficacious.

PHTHISIS PULMONALIS, OR TUBERCULAR DISEASE OF THE LUNGS.

As already mentioned there appears to have been an interval in these cases, after imprisonment, during which the prisoner was well, and able to work. cannot help assigning the commencement of the disease *de novo*, in many of the cases to this interval ; considering the cachectic constitutions of those attacked, and the local circumstances of climate, abode, and labor already alluded to. The "formation and deposition of tubercular matter within the minute air cells" is what might be expected under such exciting influences, in such feeble habits. That it is not a bold, but rather a slow creeping process of disease, is shewn by the circumstance that, not unfrequently, prisoners considered to have been hearty men previously, come to the Hospital immediately from their work, complaining of feeling weak, with cough of a few days only (as they declare), perhaps laboring under slight fever at the time, expectorating copiously tenacious, yellow, muco-purulent sputa, in whom auscultation discovers obscure respiratory murmur, crepitus, and pectoriloquy. Of the cases under review, in one, in Hospital several months and ultimately recommended for mercy and liberated, hemoptysis occurred to a great extent, and frequently. In many of the cases, almost in all, dysentery prevailed along with the pulmonary disease ; often taking the place entirely of the phthisical symptoms, and thus checking, perhaps hardly delaying, certainly not diverting, the fatal issue. The general symptoms of the disease observed, have been, emaciation day by day, and gradual failure of strength, and this going on for months ; quick pulse ; increased heat of skin each afternoon ; cough, often so distressing as to prevent sleep at night ; purulent, tenacious, flaky expectoration, often sanious ; loss of appetite ; the occasional appearance of dysentery ; œdema of the lower extremities. The auscultatory signs agree nearly with those already enumerated as attending upon pneumonia of some duration ; since there is usually an inflammatory consolidated state of the lungs, as well as bronchial inflammation, and congestion, in both descriptions of cases. In the tubercular disease, to the common signs of both these, are added pectoriloquy, mucous guggling, cavernous respiration, metallic tinkling, &c.

PULMONARY TUBERCULOSIS.

Case 6. B. M. a prisoner of four years, age 45, has been repeatedly in Hospital during the last three years, suffering from slight attacks of fever ; was finally admitted into Hospital September 12, 1844, and died January 24, 1845. During the year previously to his last admission, he had been upon light labor. He was admitted into Hospital with symptoms of disease of the lungs. Dysentery soon appeared, and continued more or less throughout his illness. He had the daily exacerbation of fever, rapid pulse, copious muco-purulent, yellow sputa, in globular masses; a tearing night cough, emaciation, and gradually increasing debility.

Post mortem appearances.

A very minute account has not been kept. The lungs were found consolidated, and converted into a grey, tubercular, semi-cartilaginous matter, occupied by numerous, small, irregularly shaped cavities, which were empty, communicating with one another, and in progress of uniting by an ulcerative process, the walls of the cavities irregular, uneven, formed of the condensed lung.

BRONCHIAL TUBERCULOSIS, PULMONARY TUBERCULOSIS, PLEURITIS, PNEUMONIA, BRONCHITIS, CARDIAC DISEASE.

Case 7th. G. M. age 60. Admitted into Hospital April 4th, 1845, died May 15, 1845. A prisoner of a year. For the first six months he was frequently in Hospital with fever, and the periodical swelling of the leg, (elephantiasis Arabica,) and inguinal glands, and absorbent vessels, so common in India, and particularly prevalent here. For the last six months he has been on light labor, but not in Hospital, suffering from the same complaints. Since the date of this last admission, he has had anasarca of the legs and face, his breathing has been asthmatic, in paroxysms, (ordinarily he has been able to lie down,) accompanied by purulent expectoration, and fever. There has only latterly, been complaint made of pain on the right front of the chest, beneath the clavicle.

Auscultatory Signs.—Front of chest the respiratory murmur generally audible, behind only heard during forcible respiration, pectoriloquy under right arm, percussion dull there, the breathing during the asthmatic paroxysms bronchial and tubular; he died after becoming gradually emaciated.

Appearances 8 *hours after death.*

Left Lung—superiorly and posteriorly adherent to the costal pleura, at its apex covered with a much thickened patch of pleura; the lung feeling here knotty beneath the fingers, its external appearance was more vascular than usual. The divided surfaces exhibited grey tubercles, seated in masses, and fibrous lines. In the centre of these grey masses, were cavities as large as small nuts, containing a creamy sort of matter; the walls of these cavities grey, and smooth.—Near this grey matter were also patches of red condensed lung; of homogeneous structure apparently, the divided bronchial tubes here looking red and inflamed. This lung did not sink in water. *Right Lung*—very extensive, distensible, cellular adhesions, between the pleuræ at the apex of the lung: the pleura, at this part, in some places of a horn-like character; thin and transparent. The external appearance of the lung was mottled dark and red. Here were found, upon division of the lung, grey, hard, almost cartilaginous masses; a radiated structure in some places, with a nucleus of some softened whitish matter. The adjacent lung was apparently granular in texture, condensed; its color of different shades of red, pouring out a thin sanious pus; having in it little cavities filled with pus, their walls of a deep purple color, smooth, communicating with bronchial tubes, also similarly inflamed. Here were also found patches of aggregated grains of grey tuberculous matter; intersected with vascular lines, with central points of pus visible upon division. The posterior and greater portion of the lung consolidated, granular in texture, breaking beneath the fingers, of a deep red color, and liver-like appearance, pouring out in places points of black blood: in other places dry upon division, with here and there a mottled color of dark red, variegated with white spots; these white, or yellowish white spots, being the incipient stage of alteration probably, of the structure of the lungs.—A very small portion only of the right lung in front permeable by the air. *Heart*—large, the ventricles dilated, not attenuated; the aorta and pulmonary artery of enormous calibre, right side of heart full of blood. No dropsical effusion into the cavities of the body. Liver upon incision of a diseased nutmeg appearance.—Ilio-Colic valve, and neighbouring parts of the ilium, cæcum, and colon, of a purple color; (in their mucous linings) and inflamed ; under water, the epithelium of the mucous membrane, exhibited a shaggy, raised appearance ; the minute congeries of blood vessels, in the deeply red parts, floating and giving it a laminated, shreddy character.

The interesting dissection of the above case unfolds the history of the progress of many such.—Here is a tubercular disease, seen in progressive stages, these being in near neighbourhood, in the same lung ;—and, combined with it, most probably superinduced upon it, an inflammatory condition also, to be seen in progressive stages. The smaller vomicæ, found in this and other dissections of phthisical disease ; I consider to be (LAENNEC) dilatations of the minute bronchi ; lined by the same mucous membrane, and in the above case, partaking of the same redness, as the continuous bronchial tubes, containing too in this instance pus, precisely similar in color and appearance to that found in the larger divisions of the bronchi of the same lung. Some of these little bulboue extremities, as it were, of the air tubes, contained softened tuberculous matter, an evident secretion of the part, as much so as the pus found in other like cavities. The larger vomicæ, would seem to be the result of ulcerative absorption, taking place amidst aggregated masses of tubercles, originally secreted within the air cells ; the truncated minute air tubes opening into these cavities. In some cases these cavities would seem to be imperforate, rendered so by a smooth lining formed of tuberculated condensed lung. The expectorated matter is a secretion from the mucous lining of the tubes and their minute ramifications. *

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* NOTE by ALLAN WEBB.—The laborious researches of M. LOUIS proved that tubercular matter, was commonly found *first* deposited in the lungs;—hence I consider the discovery by Mr. RAINEY, quoted p.106*of the tubercular matter choking up the pulmonic capillaries, to be most valuable; its infiltration thence into the air cells is easily accounted for, and also its deposition in any other part of the body; for it is, whilst thus located, if capable of moving by the impulse of the circulation, in the high road to every other part—the liver, spleen or kidney, bronchial and mesenteric glands of internal organs; and to the external parts also ; as the joints, or subcutaneous glands. Dr. INMAN's report to the Liverpool Pathological Society of microscopical examinations of tubercle, shews their location external to the air cells, and also different varieties of tubercle itself. He says—

"A microscopical examination undertaken in the three last cases served greatly to increase their interest. In all it will have been noticed that there were cavities and crude tubercles in both lungs ; that in one the liver was much as usual, in the other that it was fatty, and that the kidneys were diseased, and the aorta found in an early stage of atheroma in all. It then became a matter of inquiry if the microscopical appearances were the same. On examining a portion of the lung in which the tubercular deposit had produced solidification, or where it was sufficiently distinct to be obvious to the eye, it was found to *consist every where of round corpuscles or globules closely resembling those of lymph or fibrine.* In addition to these, especially in those parts where the deposit was yellowish, a number of large cells were to be found, some containing a number of granules of great minuteness, and others which contained nothing but fat. These existed, however, in far less abundance than the round corpuscles, of which the masses were composed.

But though the ultimate appearance in all was the same, a great difference was observed in the earliest condition of the deposit. In the second case the primary change appeared to be the secretion of a grey semitransparent substance when seen under the pleura, but which when found in the substance of the lungs only evidenced its existence by increasing their density. The points where this existed were readily discovered on making an incision into a healthy looking part, when they projected in a striking manner. On placing a small section of these under the microscope, the

The usual morbid appearances explanatory of the dysentery are ulceration of the glandulæ segregatæ and aggregatæ of the large and small bowels.

PLEURITIS, TUBERCULOSIS OF LUNGS, OF BRONCHIAL AND MESENTERIC GLANDS, ULCERATION OF INTESTINES.

Case 8th. G.N. prisoner, age 24, has been in confinement ten months ; out of this time has been in Hospital, off and on, during the last seven months, suffering attacks of fever. In the early part of this fever, he is recorded in the register as admitted with pneumonia ; since which time he has been out of Hospital for a few days only : he died June 16th.

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ordinary tissue of the lung was seen, but no adventitious substance. A repetition of these observations on the grey granulations, under the pleura, produced the same result. They were semi-transparent and structureless. * * * *

In the last case the deposit in those parts of the lung which were least affected always appeared to the eye of a yellowish white colour, and of considerable size. On making a section of the tubercle and the tissue round it, nothing was to be seen but a number of the round corpuscles in various degrees of aggregation, decreasing in quantity as they were distant from the whitish mass. *These appear to have been deposited in the intervals between the air cells, external to them and to the vessels,* both of which they compress when their increase has been considerable, the fibrous tissue alone being left in the centre of the tubercle. The deposit in the kidney resembled that in the lungs in all, the cells consisting of an aggregation of large round corpuscles, occasionally altered in their shape by pressure, but never entirely losing their distinctive character.

From an examination of a considerable number of cases I am inclined to believe that there are at least four different ways in which tubercle is originally developed. Two have been already noticed when speaking of the appearances actually observed. The other two are more uncommon, three instances only having been met with out of about fifty observations. One consists of an aggregation of large cells containing an infinite number of round granules of a brown colour, and uninfluenced by the usual reagents. The size of the cell varies from 1-400th to 1-250th of an inch, of the granules 1-6000th to 1-3000th of an inch. These cells are sometimes found collected in masses which present somewhat of the characters of encysted abscesses, at others scattered in the substance of the lungs either singly or in groups. This variety evidently answers to that described by Lebert as the usual and characteristic appearance of tubercle.

Of the fourth variety I have only seen one example. A tubercle of a white colour the size of a pin's head was taken from the peritoneum of a woman who had died of peritonitis. On examining this it was found to consist of a number of large cells, rendered dark in consequence of their being filled with innumerable globules, which were proved by pressure to be of an oily nature. A few granules were observed, but owing to the number of oil globules which were floating about, this point could not be satisfactorily determined. On pressure between plates of glass the oily matter was expelled, leaving a hyaline mass behind. These observations were repeated and varied, but always had the same result.

I examined a hard tubercle from the lungs of the patient whose case is recorded by Dr. Turnbull, and found some interesting phenomena, which throw considerable light on the pathology of the change.

On making a thin section and floating the knife with water, a number of minute air bubbles were seen making their escape from the solid mass, showing that the tissue was not quite impervious. In other parts, where the deposit was greater and more extensive, none of these bubbles were met with. On placing thin slices under the microscope the former was found to consist of air cells, whose walls were thickened and opaque. In the latter nothing was seen but an opaque brownish mass in which the remains of the fibrous tissue was alone to be discovered. In both the deposit had evidently been external to the air cells, compressing them till they were rendered almost impervious. After a while, however, with the absorption of its more fluid parts, its bulk had been diminished, and the pressure being removed the air cells had recovered their patency in the one case." *Edin. Med. Surg. Journal July* 1846, *p.* 15.

The attack of pneumonia he seemed to have recovered from, long before any suspicion of the tendency of his ailment was entertained. He was in Hospital weak, and losing flesh, and suffering from slight protracted accessions of fever, but the cough, and real nature of the disease were not noticed, until towards the end of not a month before his death. His pulse was rapid, his breathing was tranquil, and not painful, he declared. He did latterly acknowledge to a little pain on his left side ; he became utterly prostrate and dreadfully emaciated ; his legs œdematous (as in all these cases), and gradually sunk into the grave.

Post mortem appearances.

Chest.—An œdematous state of the cellular tissue of the anterior mediastinum observed. *Left side*—Lung closely adherent to the ribs by fibrinous extensible adhesions ; upon the separation of which, and division of blood vessels (apparently) connecting the pleuræ, a quantity of dark blood fell into the bag of the pleura. The pleura of this side, throughout, of a dark, purple, highly vascular (scorbutic) appearance. A pint and more of reddish serum on this side. The divided lung exhibited the pleura, as a purple membrane of some thickness. Upon the pleura, in spots, were found layers of fibrinous exudation. At the superior and posterior part of the lung, where closely adherent to the walls of the chest, was a large ragged cavity ; excavated out of the substance, almost empty of contents, with numerous bronchial tubes opening into it. The lung here about had become a mass of white tubercles, the surrounding lung highly vascular. The lung on this side, for the most part, thickly studded, with these white, granular, tubercular bodies in different degrees of softness ; the intermediate parenchyma highly florid, of a more or less deep color, and very vascular; and pouring out a reddish frothy mucus, and readily breaking down under pressure of the fingers. The ramifications of the bronchi smeared throughout, with this reddish frothy mucus and highly injected. In the midst of the aggregated masses of tubercles, scattered throughout the lung, were found, nearly formed, vomicæ ; the softened matter just breaking up, or at the commencement of absorption. Vomicæ containing pus were found, and also other small cavities empty, merely smeared internally with the matter of softened tubercles, as if with pus. *Right side*; no pleuritic adhesion; the front of this lung apparently capable of respiration ; the rest of the organ presenting much the same condition as the left lung. A large cavity on this side also, a quantity of serum found in the bag of the pleuræ of this side also. The bronchial glands at the root of the lungs very much enlarged, found to be converted into scrofulous, caseous, tubercular matter ; presenting upon incision a mottled appearance of black and white. *Heart*—natural, right auricle empty—blood found on the left side.

Abdomen—Liver of a nutmeg appearance. Spleen of usual texture—Mesenteric glands enormously enlarged, purple exteriorly, upon division found converted into scrofulous, tubercular, bodies, and vascular. *Intestines*—in lower ilium, the aggregate glands ulcerated in minute points, as also at the ilio-colic valve. In the descending colon were found numerous distinct, dark red, and black spots, some indented, some raised or condensed in structure, looking like the cicatrices of ulcers. There were also numerous minute ulcers ; and, in places, seated upon an inflamed base, points of scrofulous or other matter, the mucous membrane not much thickened, smeared with a dirty thin pus.

HYDROTHORAX, PULMONARY TUBERCULOSIS, BRONCHIAL TUBERCULOSIS, GLANDULÆ AGGREGATÆ ULCERATED.

Case 9th, R. N. age 22, was admitted in March last for diarrhœa, and died of Phthisis Pulmonalis June 14. During the three years and nine months he has been in confinement, has scarcely been in Hospital, except for one or two slight attacks of fever, until three months preceding his death.—He was a robust man, and working at the excavation of the rock for a tank—he scarcely commenced coughing, although already much emaciated, until May ; expectorating then, tenacious, thick, yellow, muco-purulent matter; with pain at left side of chest at times : rapid pulse, daily heat of skin, emaciation, great debility, loss of appetite, œdema of legs, breathing not uneasy, nor hurried. He did not rise from the ground for a week preceding death.

Post mortem appearances.

Chest, left side about a pint and half of reddish serum on this side :—the whole of the costal pleura, and that covering the lung, and extending over the pericardium, of a vermilion tint, and thickened, particularly so over the pericardium. The inner surface of the sternum smeared with pus ; superiorly and posteriorly, where the lung was adherent, the pleura was much thickened and leathery. The apex of the lung broken up into a cavity of the size of a walnut ; the walls superiorly very thin, and closely adherent to ribs : the cavity communicating with a chain of other cavities, separated from each other, by thin perforated partition walls ; these cavities empty, their walls merely smeared with a thin pus of the maturated material of tubercle. The walls irregularly shaped, made up of a structure consisting chiefly of small thickly set accumulations of whitish caseous matter ; from the midst of which small tubercular bodies could be squeezed out of the minute air tube opening into this cavity. Upon tracing and laying open the tubes, their minute extremities were found vascular, and painted with a thin pus, and in some cases choked up by the tubercular bodies,—the lung around these cavities of a vermilion tint, still cellular, and floating. Cavities of this kind were found beyond the apex in other parts of the lung, there were also found small vomicæ, their contents caseous matter and pus, dilatations of the air tubes or cells, for their lining was smooth like that of the bronchial tubes, and the pustular contents like the pus found in the larger bronchi. The lung was thickly set with groups of these softened, white, tubercular granules. *Right side*—no adhesion between the pleuræ—a marbled white and red appearance of the lung externally. The same tubercular condition as in the left lung ; with the intervening natural structure of the lung white, instead of red. Bronchial glands at the root of the lungs enlarged, their divided surfaces black. *Heart*—right auricle empty, left not so.

Abdomen—Liver, its cut surfaces of a nutmeg color, spleen healthy. Mesenteric glands enlarged, their divided surfaces vascular. Intestines—Duodenum well coated with bile. Ilium, near its termination the groups of aggregated glands ulcerated, the bowel thickened there. Little excavated ulcers with ragged, dark colored, edges, and similarly colored bases, at the ilio-colic valve ; at the seat of the glands, an extensive surface of the same kind of ulceration covered by a loose shaggy black slough. Throughout the arch of the colon, the same isolated little ulcers, and petechial appearance, and coating of pus, as in the last case.

These two cases have very similar characters, occurring in deeply tainted scrofulous, and scorbutic, habits : the cachectic condition may be accounted for by the protracted malady, and long continued defective nutrition, and imperfectly decarbonized blood in the lungs ; causes whence proceed deterioration of the vital fluid, and imperfect secretion, elimination, and absorption : whence again a further depreciation of the blood by the retention of some of its constituents, and by the non-absorption into it of other matter. I have spoken of the signs by auscultation in these different diseases generally, and have not entered into a tedious detail of these in each case.

PLEURITIS.

I have briefly spoken of my experience in this disease amongst the prisoners in connection with pneumonia; the morbid alterations of the pleura have been the following :—cellular, membranous, fibrous adhesions, between the opposite pleuræ without thickening ;—adhesions dense and consolidated between the same ; tenacious thick yellow layers of fibrin upon both pleuræ, this false membrane often found of great thickness at the root of the lung, uniting it to the spine ;—a semi-transparent condition of the pleura pulmonalis resembling horn; the cellular adhesions between the pleuræ sometimes œdematous, of a jelly-like and thick ropy description ;—a dark red, diffused, or maculated, vascularity of the pleuræ; ecchymosis beneath the membrane ; serous effusion and sanguineo-serous effusion between the pleuræ. But these states have not been severally distinctly marked by diagnostic signs during the course of the disease, many of them being chronic states of gradual development ; and, when uncombined with pneumonia, having a lengthened duration, ending in empyema, or pneumothorax. Pleuritis occurring primarily amongst the prisoners is generally recovered from ; not having the acute character of the European disease, and often, I believe, confounded with pneumonia.

The following tabular statement of barometrical, hygrometrical and thermometrical observations at Midnapore for a period of thirteen and a half months, viz. from May 1844 to the middle of June 1845, complete Dr. Green's most able report. He remarks, 1st :—The averages have been reckoned according to the actual number of days observed in each month, a day or two's observations having been missed now and then.

2nd :—The Barometer (Jones') has been placed throughout the year in a spacious lower room, kept shut up during the day only, in the very hot months, otherwise open.

3rd :—Wet bulb's temperature observed for the first six months from May to October, in an upper room with immediate access of the external air through open jhilmils ; for the next four months in a large lower central room kept open ; for the last two months in same room kept closed in day-time, with a tattie part of the time.

4th :—Maximum and minimum temperature was observed in an upper room, with immediate access of external air.

The much greater fall of temperature of the wet-bulb in Calcutta than here these hot months in 1845, has arisen from the shut-up position of the hygrometer, and consequently is no fair index of the relative dryness of the place.

DR. GREEN'S METEOROLOGICAL OBSERVATIONS FOR MIDNAPORE, ILLUSTRATING TROPICAL PULMONIC DISEASE.

Monthly Averages.	Bar. Temperature 3 P M.		Wet Bulb Therm. 3 P. M.			Temperature		Difference.	Rain quantity in each month.	Wind, direction prevailing in month.	REMARKS.
			dry	wet	diff.	Max.	Min.				
1844 May			91·5	83·	8·5	95·	82·	13·	6.70	S. E.	Heavy rain, North Wester.
June	29·620	90·7	90·5	84·	6·5	92·	79·5	12·5	9 56	S. E.	Idem. Storms alone, from the S. W.
July	·643	86.5	86·	82·	4·	88·	79·	9·	7.55		
Aug.	·637	85·	85·	82·4	2·6	86·	79·	7·	18.76	S. W.	A greater rise of the Cossy river than had been known for years, the water covering a large tract of country beyond the banks.
Sept.	·799	88·	87·5	80·5	7·	90·5	79·5	11·	1.72	W. & S. W.	
Oct.	·919	84·	84·	77·	7·	86·	73·6	12·4	8.9	N. & N. W.	Heavy rain; occasional storms from N. and N. E.
Nov.	30·061 9p m	73·	not	noted		82·	59·5	22·5		N. & N. W. N. W.	
Dec.	30·085 9p m	70·	72·5	64·	8·5	76·	53·	23·			
1845 Janry	.. 087	74·	74·5	66·	8·5	7 ·5	56·5	22·	.55	N. W.	Clear days, foggy morn, a comet seen to the South, an earthquake felt at the station, subsequently.
Febry.	.. ·056	75·	76·	67·	9·	80·5	60·	20·5	.36	N. W.	
March	..2· 69	81·	83·	71·	1·2	92·5	70·	22·5		N.W. in day S.W. at night	A few North Westers.
April	.. ·815	83 5	84·5	80·	4·5	95·5	77·5	20·	573-364	S.	Occasional storms from all points of the compass.
May a month observed	... ·710	86·	88·5	80·5	8·	91·	81·	10·	inch 535	S. E.	Heavy rain, frequent North Westers occurring in the afternoon.

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Sir James Clark in his work on tubercular consumption and scrofulous diseases, says of "febrile consumption," (analogous to the disease here described by Dr. Green,) " but still the symptoms are often so little marked as to render it doubtful whether the disease is not acute bronchitis *or pneumonia"*........" *it is difficult to distinguish the disease from pneumonia*." Again—" But there are cases respecting the real nature of which the most attentive observer aided by all our means of diagnosis may be in doubt." ...." It is proper to remark that the disease which I have described (febrile consumption) *has been considered as a form of pneumonia, the grey granulation being regarded* by Andral *as the result of inflammation of the air cells; and on this view there will be equal propriety in considering the rapid tuberculous infiltration of the lungs, the result of inflammation* in a tuberculous subject. I do not think it of much consequence to dispute this point. *I believe that inflammation in a tuberculous constitution may give rise to the deposition of tuberculous matter in place of coagulable lymph, which in healthy subjects is its natural product. And thus inflammation may be one of the immediate causes of tuberculous disease.*"*

In the truth of this I fully concur. It is a conclusion I had come to, without knowing that Sir James Clark had done so. The same fact is I find admitted even by Laennec himself. † Rokitansky has given the clearest account of this process. Of tuberculous disease of the lungs he says, there are two distinct forms, namely, interstitial tubercular granulation, and tubercular infiltration or infiltrated tubercle. In the latter the morbid substance is effused in the air cells themselves, in the former in their interstices. The tuberculous infiltration is " hepatization by a tuberculous product." An ordinary croupous or plastic pneumonia in the cell its usual product ; and this, under the influence of a tuberculous diathesis, instead of being absorbed or becoming purulent, passes through various discolorations, and is metamorphosed into the yellow tubercle ; in other words, it is tuberculised. The several stages from the fibrinous to the tubercular matter may be distinctly traced." As Laennec remarks, one cannot avoid believing both in the possibility of the production of tubercle by inflammation, as well as of inflammation by tubercle, " *lorsqu'on ouvre des cadavres avec quelques suite*" ; although it is quite certain that collections or depositions of strumous matter may take place without any appreciable inflammation, just as occurs with purulent matter.

Inflammation of a low asthenic kind may give rise to the deposition of tuberculous matter in any constitution. In Calcutta I have found it to occur in the ourang-outang, in bears, and in Arab horses, and other animals imported here. *They* could not have had what we understand by a scrofulous constitution previously, (I will not say as much for our Calcutta *sewer-bred-rats*, full of tubercles and very *evil looking*) ‡ nor do I think such a constitution at all likely to have been present in the subjects of DR. GREEN'S cases. I had myself for a short time upwards of 1,300 of such prisoners under medical charge, in the neighbourhood of Burdwan. The zillahs of Moorshedabad, Nuddea, Manbhoom, Beerbhoom, Bancoorah, &c. in Bengal, furnished most of them ; and only a few men came from the Upper Provinces. I never saw among them living, that I can recollect, any external marks of scrofula, nor any internal evidence of it, in such as I examined after death, save the consumption, which carried so many of them off, as in DR. GREEN'S cases, which is referrible chiefly to the circumstances of diet, labour and locality, ; but I do not think it probable that a scrofulous diathesis had any thing to do with it.

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* Clark on Pulmonary consumption, London, 1835, p. 47.

† " On ne peut nier, il est vrai, que le péripneumonie aigñe ou chronique ne coïncide quelquefois avec les tubercles : *probablement meme elle peut devenir l'occasion de leur development chez des sujects qui y sont d'ailleurs disposes.*"

De l'Auscultation médiate R. T. Laennec, *Paris*, 1819. *Tom* 1. *p*. 31.

‡ See division Liver, p. 64.

Whilst writing these remarks two cases present themselves which illustrate the formation and localization of tubercular matter.

Case I. I this day examined the lungs, &c. (No. 1395) of a HINDOO woman, Oomah Churn, of about 45 years of age, admitted last month September, 1846, and who died after being in hospital about 20 days, having been admitted for contusion and fever. And it is said having presented no urgent symptoms of dyspnœa, until the 24 hours preceding her death, she had however previously swelling of the left side of her face, whilst she had long suffered from dropsy of the legs.

There was found after death, extensive inflammation of the thoracic cavity, and of its contained viscera. The left lung had become shrunken, and atrophied, and useless ; owing to the pressure upon it, occasioned by the development of a fibrinous cyst, containing nearly two pints of fluid, situated in the lower part of the left pleural cavity, between the base of the lung and the diaphragm. The walls of the cyst were sufficiently firm to isolate the contained fluid, the diaphragm below was puckered up, and presented no appearance of muscular structure, *the lung above and resting upon the cyst was dark red, having large spots of apparently tubercular matter*, round and hard, when pressed between the fingers, and projecting from its cut surfaces, of a cheesy colour and consistence :—*but the upper lobe had not a trace of tubercular formations in it.* On the right side there was evidence of more recent pleuritic inflammation at the upper part. The lung had a shrivelled appearance at the apex, and here some hard whitish spots were found ; nearly all the upper lobe presented the red carnified appearance of recent inflammation : the lower generally respirable : the pleura red, swollen, covered with miliary tubercles, or granular fibrinous deposits, (whichever term they may be entitled to,) and containing on this side also a quantity of clear fluid of a yellow color.

The same kind of fluid was found in the pericardium, distending it so that it was twice the bulk of the contained *heart*, the cardiac serous reflection opake, in several places. *Heart* hypertrophied in its left ventricle, a number of bright red looking blebs were clustered about the mitral valve, one or two of them becoming opake at the centre. The endocardium of left ventricle was opake, auricle small, the appendix nearly obliterated by the production of fibrine in its interior. The aortic lining membrane inflamed, as shewn by thickening, and atheromatous spots here and there. Right auricle dilated. *Abdomen* contained fluid, there was cirrosis of the liver, the organ was small, lobulated, of a pale yellow color ; a little thick bile was found in the gall bladder ; spleen also atrophied.

Uterus had a large carcinomatous looking tumour dependent from its fundus, both ovaries encysted, the cysts full of yellow fluid, pyriform in shape, (see No. 1394) and very transparent.

In this case inflammation of the diaphragm in contact with the base of left lung was accompanied by tubercles in the lung *at that* point, and none are seen in the substance of the upper lobe :—whilst on the right side, inflammation most intense at the upper part of the pleura, was coincident with the appearance in the corresponding lung, of a few tubercles, but none were found in the lower part ; the diaphragm on that side not inflamed.

Case II. I this day Oct. 22, 1846, visited a young European bred girl, age 15, one of four sisters, all affected with scrofula and the only family in Calcutta in which I have seen the disease developed externally.

This young maiden was long under my care with enlarged knee, lobulated, hard on its surface, covered with blue veins, the girl being thin in person, very fair, with transparent skin, light hair and grey eyes. The use of iodine was beneficial, and the leg was not amputated ; but perfectly recovered. Six months afterwards her eye, the right, became obstinately inflamed and continued so for three months, when by the use of stimulating pediluvia the catamenia after long suspension returned, and the eye got well. A month ago the cervical glands began to swell, on the right side, this continued with great tenderness, till they attained the size of the girl's open hand, greatly distorting her face, and preventing swallowing, except only liquids. Leeching, lotions and iodine, externally and internally, relieved them. To-day the swelling is much less. Now the shin-bone, the left, is seen to be swollen, uneven, painful when she walks, whilst the foot cannot be pressed even without producing pain.

Now this is plainly a case of pure scrofula, the strumous matter, (caco-plastic fibrine,) being circulated from point to point, accumulating occasionally in the capillaries of one or other part, but tending chiefly to the external parts, or bones ; not attended with inflammation,* unless the distension be great. It seems to have a peculiar tendency to accumulate in the osseous system. This is in natives of India very observable, because very common.

We now see at all events that the natives of India are not exempt from pneumonia and phthisis. They cannot therefore be exempt from diseases of the heart, arteries, and circulatory apparatus ;—for the law of necessary connexion between these diseases is universal. If therefore I had not proved already, in the preceding Division, the frequency of carditis, endo-carditis, and also arteritis ;—with its consequences, arctation, atheromatous deposits, ulceration and aneurism ;—we must yet have been prepared to expect these, consequences of inflammation, and of obstruction in the lungs, so soon as we had fairly established the existence of pneumonia and phthisis : whether or not, we be prepared to consider these last as phases only of one and the same disease. In this respect the family of diseases we now investigate, stand in the relation of parents to their progeny already noticed, namely diseases of the heart and arteries.

If therefore, when publishing the former edition, I possessed sufficient evidence of the general existence of pulmonary disease in India, although

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* See Cyclop. Anat. and Phys. Bone, p. 450.

I did not then adduce many specimens of aneurism and disease of the heart from natives of INDIA, I had yet, I maintain, a perfect right to infer nevertheless, that they must exist, for I then alluded to this law of necessary connexion of diseases of heart and lungs. My esteemed friend the late Editor of the India Journal of Medical Science, must himself have overlooked this fact, when he wrote, "We think the Professor is too ready to draw general inferences from insufficient data"—I have now shown that the data were sufficient for the inference, and have besides fully answered those queries which he addressed to the profession in INDIA in 1845—1st, "Are the natives of India exempt from *aneurismal tumors*, and in what degree are they exempt? 2nd, "Is it that the natives of INDIA are not subject to the *morbid depositions* which are found *in the internal tunic* of blood vessels, and which precede aneurismal formations?" These two phases of one and the same disease are we have seen met with abundantly in natives of INDIA both male and female.

I have preferred therefore noticing in this place, rather than in the DIVISION OF THE HEART AND ARTERIES, the bearing of this fact of the existence in INDIA generally of pneumonia and phthisis upon disease of the heart and arteries, (of which the case No. I. just given is an additional instance) as it gives me the opportunity to reply to this charge of hasty generalization, which here at all events is not borne out.

The consideration of scrofula has a natural connexion with tubercular disease of the lungs, but this I must leave to PART II of this work, the SURGICAL PATHOLOGY, should I be permitted to undertake it. Yet there is one fallacy concerning it, very generally spread in Europe, and of course reflected back to this country, I mean the universal prevalence here of scrofula, upon which a few remarks may not be misplaced.

As the capillaries of the lungs can be plugged up with tubercular matter, it is easily understood how the capillaries of any other part *might* be. But the law of necessary connexion between phthisis and scrofula is not so obviously proved, as that between phthisis and disease of the heart and arteries. Nor unless we comprehend in the term scrofula, leprosy (tuberculous) and cachexia (non-tuberculous) can it be by any means so common in INDIA as stated. The British and Foreign Medical Review for July of this present year 1846, says, "In INDIA *consumption is rare; scrofula rife;*" yet this proposition cannot I think be substantiated. Reverse the order of diseases, and the statement would perhaps be nearer the truth. But we cannot wonder at such conclusions when Dr. A. JACKSON states that he thinks "In INDIA 80 per cent. of half-caste children are scrofulous !! 50 per cent. of natives! 40 per cent. of English! and 10 per cent. of Musselmen." Mr. PHILLIPS in his work upon scrofula appears fully to rely upon these, as well ascertained data, and says, "At St. Petersburgh, with a mean temperature of 3·23, and a general mortality of 3·770; and Moscow with a mean temperature of 3·6, and a general mortality of 4·010; and Iceland where the centigrade thermometer in winter indicates 20 minus, there appears to be less scrofula than at Lisbon, with its temperature of 71·2, or than at Amsterdam, Berlin or Calcutta*"!!

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* Vide Brit. For. Med. Rev. July, 1846.

Now taking the test which Mr. PHILLIPS chiefly resorts to, namely 'the existence in the glands of the neck of scrofulous swellings in children, or the marks of cicatrices where they have been opened by the knife, or by ulceration, I can assert that I have never seen such swellings, nor ulcerations, nor have I consequently had occasion to open them, in the 300 children of all ages and even to adult age, of which the Government Orphan School consists, and the greater part of whom are half-castes : the remainder European. In the children of La Martiniere (260), all of Calcutta, of whom not more than 30 are European bred, and who are likewise under my medical care, their ages varying from 4 to 16, and also chiefly half-caste, the remainder European or Armenian, the only children among the girls having marks of scrofula belong to one family and are European-bred, being the family already alluded to, Case II. Of the boys two only present *marks*. Moreover the Orphan School children are always examined carefully upon admission, yet in these examinations for the last 4 years I never saw marks of scrofula. In the Orphan Schools there are between 400 and 500 admissions to Hospital annually, yet not one entry for scrofula. How therefore can scrofula be so rife in Calcutta, as to exist in so large a proportion as 80 per cent in East Indian children, 40 per cent in English-bred children? Among the natives of INDIA inhabiting the lower range of the Hymalayan mountains, I have certainly seen scrofulous swellings and ulcers in the neck, common ; but in no other part of INDIA do I know this disease to prevail generally, yet I have had the rare fortune of seeing nearly all of the country, having traversed it from Cape Comorin to the Hymalaya, from the Sutledge to the Barampooter.

In La Martiniere there is a difficulty in ascertaining parentage. But in the Government Orphan Schools the parentage is registered as follows :

Number of children present in the Lower Orphan School, on the 13*th October* 1846.

	European	East Indian	Total
Boys	40	91	131
Girls	42	128	170
Grand Total ...	82	219	301

TUBERCULOSIS OF BONES.

My own observations and the specimens which I have collected fully bear out the following remarks of my esteemed friend DR. GREEN, whose opinion I requested upon the statistics above quoted :

'On thinking over the scrofula matter, a most common form of disease with the natives, is bone-disease of an asthenic character. Yet this disease is, I think, the result less of a mere hereditary taint descending from one to another, than of circumstances of poverty ;—poor living, bad clothing, exposure, &c. :—all which produce atony of the vital power and organic functions, (cachexia,) and render the body more obnoxious to the common exciting causes of disease. Perhaps you may call this scrofula and perhaps it is, but that scrofula is commonly hereditary, and occurs amongst the well favored and well fed. It is dependent upon a condition of the blood less nutrient than that of the healthy European standard. This would explain the cachectic state, the feeble organic function, and defective nutrition of the body, and inferior vital energy, and force of circulation. I look upon scrofula as an inflammatory process although of a low kind. It is of course common but not *so* common. For any of the three classes, the estimate is much too large for my experience. How universally common is spleen disease, that index of cachexia, amongst the half-castes, as well as natives !'

I cannot present in our MUSEUM any specimens of scrofulous or tubercular disease of the cervical glands, yet there will be found plenty of strumous depositions in other organs of the body, but incomparably the most numerous in the lungs and bones,—a few examples of the latter may be alluded to.

No. 945, from a Hindoo male ; is bossed upon the lumbar region with tubercular elevations. In the fresh state they had when cut into, a semitransparent appearance, like cartilage. In No. 1018 the vertebræ are more or less destroyed by maturated tubercular matter, which had accumulated in lardaceous masses at both groins, from a Hindoo female. The tumour projecting from the spine in No. 827, was from another Hindoo woman. No. 531, was taken from a male Hindoo, it shews a tuberculous condition of the femur. No. 181 shews tuberculous exostosis, from the upper extremity of a Hindoo. But of all these the most remarkable, because universal, tuberculosis of the bones, is shewn in the following (No. 1388) taken from an emaciated middle-aged Hindoo male, brought to the dissecting rooms in the session 1845. The exostoses are in some places two inches long, the majority of the tubercles when cut into in the fresh state, exhibited the usual grey semi-transparency. The internal viscera were not affected. It is perhaps the most extraordinary instance on record of tuberculosis of bones.

The head alone was free from tubercular elevations. The spinal column is dotted all over with tubercles and the sacrum also, of the ribs on the right side ; the 2d, 3d and 6th present large elevated tubercles, some projecting out the size of a finger end, and as the corresponding scapula has tubercles projecting half an inch and equally large, it is probable that anchylosis had taken place. The 10th rib has a large excavation at its sternal extremity, and the remaining ribs are tuberculous in a less degree. The ribs of the left side have not all been preserved, but those which remain are tuberculous in a less degree ; the 10th having like its opposite fellow, a large excavation. Only the upper piece of the sternum is preserved but it, as well as both clavicles are tuberculous. The os innominatum presents a singular appearance from the asperities caused by the tuberculous elevations ; they are most abundant near the crest of the pubes.

The left lower extremity is a most singular specimen of tuberculous exostoses. One upon the inner condyle is two inches long with a large expanded ulcerated head. The hollow of the ham has a projection as large nearly as the head of the humerus. Asperous tuberculous elevations and knobs of less size project round the heads of the tibia and fibula, and in a less degree at their lower extremities. The same description with slight variations would answer for the right lower extremity, which presents a great number of tubercles at the base of the trochanter. Both upper extremities have become much deformed from the presence of tubercular eminences and projections. The bones of the hands and especially of the feet being covered more or less, also, with tubercles.

The strumous disposition is not commonly shewn in this country in swelled cervical glands. It is in European-bred children, and East Indians also, most frequently shewn by scrofulous abscesses, originating in low inflammation of the bone or of the periosteum. I have found it necessary repeatedly to push down a knife or trocar, and actually touch the femur before I could open these abscesses, whitish flaky pus (aplastic fibrine) being the usual product. The fair white skinned European children are most subject to them. But in half-caste children they present themselves also, as hip abscess, or as psoas or lumbar abscess, with exfoliation of vertebræ and continual discharge of calcareous or tubercular matter.

I am induced to think moreover that as respects children, the tuberculous matter is often carried off by the bowels, producing a peculiarly inveterate form of dysentery. The semi-transparent matter of tubercle is thus purged off from the capillaries, in early life, for it is rare to find tubercles in children here. But when the age of childhood is passed and this ill-conditioned fibrine yet lurks in the system, an attack of inflammation may accumulate it in the lungs, by arresting it in the delicate capillaries of the cell walls, or accumulate it in the liver, spleen or mesenteric glands, or in the bones, when it may be universally spread over the osseous system as in the instances adduced. Leprosy in India is a very common form of tubercular deposition in the skin and joints, and many half-caste children whose appearance would indicate a scrofulous or strumous habit, are scarcely ever free from these hideous little islands of white upon their dark skin, or from large eruptions like water-pock or from ring-worm. Experience has taught me that it is most dangerous to cure these eruptions hastily (if the term be permitted,) and leads me to infer that the skin does here what the mucous membrane does in dysentery, viz. discharge this most pernicious matter from the system. The doctrine and practice of the humoral pathologists is here the safest and best.

To enter into practical details is opposed to the general plan of this work. But I have seen so much misery in private families, and so much harm in the public service, arise from the false views that prevail respecting scrofula and consumption being benefitted by tropical climate, that I feel bound to state my conviction that Bengal at any rate is most fatally inimical to these diseases. I have seen medical men, clergymen, officers in the service, &c. who have told me when surprised with the fatal turn of these diseases that they expected *to get well here.* I have seen young and beautiful European ladies, carried off with appalling celerity. I have seen quite young soldiers, who if they do not quickly die are sent home wholly unfit for this or for any other service. I have visited Penang and Singapore, nor can I think from my observations *there*, that they in any way retard the fatal issue of consumption. I have known a whole family lost at sea, father and children, all ;—in accompanying a mother whose latest sufferings could only have been painfully aggravated by being sent to die in so far a land.

PREPARATIONS

In the Museum of the Bengal Medical College.

DIVISION—AIR PASSAGES AND LUNGS.

Nos.

770. *The mechanism of the first portion of the respiratory organs, or the relation of the mouth, pharynx, and æsophagus, to the nares, larynx, and trachea.* It is one of a series of preparations of surgical anatomy, made under my direction, by a student of the College. The opening of the nares, of the Eustachian tube, and of the sphenoidal cells, is seen above ;—the mouth, almost closed by the pendant soft palate in front. The glottis guarding the trachea is seen below, and also the free opening of the æsophagus. It illustrates the mode in which the tube should be introduced, into the rima glottidis, in asphyxia, the tube of the stomach pump in poison cases, or the bougie for carrying a compress to the spheno-palatine arteries, in hemorrhage from the nose; and also the mode in which an instrument should be directed to remove obstruction in the Eustachian tube; as demonstrated in my surgical lectures. It is introduced in this place in connection with the respiratory organs, the entrance to which is thus shewn to be constructed with wonderful design. Whether we regard the ordinary avenue of air through the nares, or that which is connected with the organs of speech and mastication, we see that, under all circumstances, the important function of respiration is admirably secured.

165 *A wax model by Scholss—the muscles of larynx and pharynx.*

1401 *The dissection of capillaries in the respiratory organ of a plant—(the leaf.)*

217. *Section of the lung of a turtle* (Chelone) *to shew the air cells.* In this portion, the cells are arranged very much like a honey comb, affording a fine illustration of the wonderful sub-division of the air vesicles and of the vascular membrane which lines them, for the purpose of minutely sub-dividing the blood, and insuring its exposure to air. Better shewn in the next.

389. *In this preparation the dried lung of the alligator* (crocodilus biporcatus), the cells being larger, the distribution of blood vessels is very apparent to the naked eye, although the preparation has not been injected; and nothing can give a more lively idea of the use of the organ, in multiplying a vascular surface, for contact with air. As in a leaf, the respiratory air cell of a plant, the arrangement of vessels is very distinctly seen.

Nos.

773. *The air cells of the lungs of a fœtus shewn by injection*—This preparation illustrates in the most striking manner one form of pulmonary tuberculosis. I have injected the lung of an infant that had never respired, with slightly colored injection, from the trachea. The partly putrified tissue of the lung has in some places broken up, several air cells have disrupted into one, with uninjected pulmonary tissue between, some of the injected lobuli, like the umbels of cauliflower are projected beyond the surface and raise up the pleura, exactly as we find to be the case with tubercular deposition in the cells. The object of the preparation, in fact, is to illustrate the formation, and localization of tubercles. Which is rendered even more plain, from the unequal manner in which the injection has run, in the decomposed part of the left lung (compare with Nos. 376 and 285.) From some of the more prominent lobuli the pleura has been removed, in order the more perfectly to expose the injected cells upon the surface. Whilst, in the course of the section made of each lung, many cells are shewn empty, from the injection having fallen out. The very minute granules, which fill the true cells, can only be discerned by the lens, their size is best indicated by the minute granules, like dust, at the bottom of the jar; the larger extravasated masses are sufficiently manifest without it.*

It is the only preparation we have, in which *the foramen ovale is shewn;* a large glass rod is here passed through it.

843. *Asphyxia and death from pressure of a worm upon the glottis,* see case p. 152. The large lumbricus is seen impeding the glottis.†

1380 *Sphacelus of the œsophagus, as it passes through the diaphragm—effusion of its contents into the chest—ulceration and softening of trachea and bronchi—universal pneumonia, plugging of the air cells with pus, so as to resemble pulmonary tuberculosis—adhesions of diaphragm which is seen ulcerated—sloughing of mucous coat of the stomach—softening of the heart, acute aortitis, the inner coat blistered up at the root of the cephalic vessels, of a velvetty crimson as far as the diaphragm, with a few opake spots of atheromatous deposit:—from a woman, a native of Calcutta.* See p. *147.

1033 *Sphacelus of the œsophagus, ulceration of trachea:—abscess in neck, opening upon the skin, and communicating with the lungs;—also with the pericardium and œsophagus by continuous sinuses. From a Lascar, a native of Bombay.* See p. *145.

1325. *False Passage behind the œsophagus, presented by Dr. Oxley, Singapore.* With the following note:

This was a remarkable case; the man was admitted, said to have swallowed a fish bone some days previously, since when he could not swallow even a drop of water. The man was an old invalid, and he was not sent into Hospital until they thought he was dying. The apothecary declares he introduced a probang, upon first trial, but subsequent trials failed. I was sent for, and my efforts to introduce the probang brought on violent spasms, but were perfectly unsuccessful. Thinking it stricture of the æsophagus, I directed, grs. ij. of Hydr. Chlo. to be put upon the dorsum of the tongue every two hours, as I have seen such cases yield to similar treatment. The man got worse, not a drop of fluid could be got down the throat; and died in about twenty-four hours. I could get no history of the case, but upon opening the body, the false passage down which the probang was pushed each time was discovered, and thinking it worthy of being prepared, I cut it out accordingly.

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* Microscopical observations upon the formation, location, constitution, and accumulation of tubercular matter will be found pp. 116, 100.

† In the instance of a little European boy who died in the Hospital at Alipore under my charge, a worm of this kind made its way half out of the mouth of the child who was too weak to vomit it and then went back. This seems to have been the case here, as the animal is doubled back upon itself.

1353. *Sphacelus of the air tubes, from a Native of Bombay.*

Air passages—Upon laying open the trachea, the internal membrane presented a vivid red appearance, its greatest intensity at the lower part where it began to assume a livid hue which continued to the bronchia. Small ulcers were dotted about the middle of the trachea,—and just before the division was an irregular ulcer larger than a rupee. The mucous membrane looked whitish in several places; water poured over it, shewed it abraded and floating in shreds. Upon laying open the *left* bronchus, an ulcer about the size of a sixpence, with red granulating edges was seen. After a course of not more than two inches, this tube terminated in a slough. The whole of the bronchial tubes in this upper lobe seemed to have sloughed, leaving a large irregular cavity ; most extensive, where the tubes are largest. Upon the periphery of the lung the remains of sloughing bronchial tubes might be traced. The central part being composed of white, green and broken down tissues, but no tubercles. Indeed pulmonary and bronchial tuberculosis when they lead to destruction of the air tubes and blood vessels, from these becoming involved in a tubercular excavation, still leave them, distinctly visible, both upon the proximal and distal confines of the cavity; but here the pulmonary tissue of the lower lobe, offered many *sloughing* tubes in its inflamed reddened structure. If cut across, they looked like tubercles, but traced in their natural course were seen to be the proper structure of the air passages, converted into white sloughs : clots of dark blood had accumulated about one of the large sized bronchial tubes.

The right bronchus also might be traced a short distance, then its main division passed through the red stage, the livid stage, a softened stage, and entered a large sloughing cavity. Excepting that this lung was perhaps less diseased than the left, it had the same characters. Large cavities existed in an irregular manner throughout the middle, and upper lobe ; apparently beginning in the middle, and extending irregularly to the circumference, but still in a way that led one to connect them with the course of the bronchial tubes. The lower lobes of both lungs, presented pulmonary tissue, affected with acute pneumonia ; as shewn by the red glutinous product which exuded upon slicing them.

Nos.

Externally, the pulmonic pleura was patched over with albuminous deposits, where the cavities existed. A dark purple or almost black colour, marked the remainder of the upper lobes ; the lower were more healthy in external appearance, but the circumference of the base of each lung, was fringed, as if edged with lace, by fibrinous deposit about a quarter of an inch wide.

The heart presented a whitish opalescent aspect generally. On cutting through its walls, they were found to be penetrated for a line, or a line and half from the pericardiac membrane, with a transparent gluey-looking production. The right ventricle attenuated and dilated, its muscular substance softened.—It contained an adherent, whitish, membrani-form coagulum ; prolonged through the pulmonary meatus, and artery. The auricle above dilated, the endo-cardium opake, especially at the auriculo-ventricular opening, where the tricuspid valve was inextricably connected with the coagulum, which was indeed prolonged by delicate false membranes upon its under surface, and upon the laciniæ. No thickening or deposition within the pulmonary artery. Left ventricle hypertrophied, its cavity contracted a small membrani-form coagulum, in it. The endo-cardium opake around the ostium ventriculi, the mitral valve opake, the semilunar valves opake, thickened, of a pink hue, the sinuses above blistered, by reddish fluid underneath the arterial internal coat, these seemed to increase towards the arch. Here the atheromatous deposit lay in patches, with raised striæ proceeding from them, with longitudinal furrows in the intervals ; (MORGAGNI says, " as to these furrows I have observed them in other subjects." Lib. xviii. *a.* 35) These deposits more distinct at the root, and just within the cavity of all the great vessels arising from the arch. Only one or two minute spots were opake, the membrane internally had a swollen villous look, very apparent when contrasted with the descending aorta below. See p. *151.

1348. *Dilatation and hypertrophy of the bronchial tubes of the left lung, the rings visible to the periphery* of the lung even,[*] so strongly

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[*] " Dilatation of the bronchi Hasse describes as of three forms, the first consisting of a single spherical or pouch-like protrusion of the walls of the tube, the second constituted by a series of these cystic dilatations, and the third of distinct character, formed by the uniform dilatation of a number of tubes throughout their whole length, making the portion of lung to which they go appear to consist exclusively of tubes widened to many times their natural size. The former two, or spherical, forms are produced chiefly by bronchitis and tubercular disease of the lungs. The influence of bronchitis is probably exerted in the following way :—

" First, the air-passages are stripped of their epithelium-lining in the ordinary manner, their canals becoming loaded in part with a mucous secretion, in part plugged with fibrinous exudation. This latter occurrence takes place chiefly within certain of the lesser twigs, occasioning a collapse of the adjunct air-cells. The space thus set free is sought to be filled up by expansion of the neighbouring parts, giving rise in the majority of cases to emphysema ; where, however the collapse does not occur closely beneath the surface of the lung, but at a greater depth and near a larger bronchial tube, and where it comprehends a larger tract of pulmonary substance, the result is bronchiectasis. These circumstances do not, however, suffice for the formation of a bronchial cavity ; the parietes of the involved bronchial tube must needs have previously suffered the changes pointed out by Stokes, namely, loss, through inflammation, of elasticity

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are they developed, loaded with granular fibrinous exudations in the larger divisions, and occasionally with fibrinous layers in the smaller ones. Some minute tubes appear to dilate, and to be then filled or partly filled with tubercular matter. Some end by an abrupt ragged, ulcerated edge in the excavations scattered throughout this portion, the excavations having been formed by removal of tubercular matter, which is still seen collected in small masses here and there with condensed hepatized pulmonary tissue around them. The pleuræ are firmly united by adhesion, from Private J. Robinson of the 94th Regt. *Presented by the Inspector Gen. of Madras, Dr. J. Mouat.*

938. *Bronchial Tuberculosis from an European,* who died at Dum-Dum. The mucous membrane of the bronchial tubes in many points seem filled with tubercular matter, in others it has become broken up into abscesses.. The tubes are much dilated throughout the whole organ, very distinctly visible, even upon its periphery, see case p.*156.

Note.—The accompanying diseased lung appeared to me so important as to induce me to trouble you with it. It is from a young Soldier who has suffered from a pulmonic affection for months past, and as I learn, was first affected whilst in *prison* in England, a year or two ago; having deserted from the depôt. He is a native of the Orkneys, and by trade a shoemaker. He died yesterday evening. The heart was small and firm. Pericardium filled with transparent fluid (probably ℥viij.) This is the right lung as you perceive, the left was as much diseased, with an abscess in the upper part of

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in the longitudinal, and of contractile power in the annular fibres, with consequent incapacity on the part of either to resist the mechanical influence of forcible inspiration, or of violent cough. It is difficult to say whether Stokes is right in believing that a saccular protrusion of the mucous membrane is caused by yielding of the fibres;—such however, may probably be the case, where the dilatation is one-sided, and its principal portion external to the axis of the bronchial tube. The analogy, likewise adverted to by Stokes, with the forms of aneurism, must, on the other hand, fall to the ground, as untenable." P. 297.

We see no reason, however, for dissenting from the opinion of Stokes in reference to the analogy between these bronchial and aneurismal dilatations. With regard to the third variety, or the cylindrical dilatations, Hasse adopts a similar theory to that of Corrigan, who has termed the disease cirrhosis of the lung.

The cylindrical form of bronchiectasis arises where the pulmonary cells have become extensively obliterated by previous pneumonia, and the bronchial tubes been constrained by the pressure of the air to fill up the space vacated, before the parietes of the thorax have had sufficient time to collapse. In like manner, pleurisy may give rise to dilatation, where the effusion is of a character to keep the pulmonary cells long compressed, without subsequently affording them an opportunity for due expansion. "The bronchial tubes not being similarly encumbered, are the more liable to yield to the pressure of the air inspired." If, in addition, the parietes of the air-passages have lost somewhat of their elasticity from the previous inflammation, this passive (as Hasse terms it) dilatation will be the more likely to occur. We doubt, however, whether the dilatation will be the more likely to occur. We doubt, however, whether the dilatation occurring in these circumstances is so entirely a passive phenomenon as Hasse supposes. Why should not the air-cells give way rather than the bronchial tubes, unless indeed it be assumed, that this is prevented by their being filled with inflammatory products, in which case there is no space vacated, and requiring to be supplied by the distended bronchia? We are rather inclined, with Dr. Corrigan, to believe that contraction of the surrounding tissue is an important, if not the main, cause of the distension of the bronchia. We have looked in vain in Gross's work for any explanation of this or any other form of dilated bronchi." London Med. Chir. Rev. July, 1846, p. 180.

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the lobe, corresponding with the jagged diseased feature of this specimen. *Note by Dr. Clark.*

285. *Tubercular infiltration*, and *also bronchial tuberculosis.** The outline of the bronchial tubes divided transversely, is seen, filled within, by tubercular matter. Those divided obliquely, have lost the matter which filled them, owing to the action of the spirit solving and precipitating it. Considerable portions have lost all trace of air cells, which seem to have been obliterated by the tubercular infiltration, into the connecting cellular tissue.

376. *Bronchial tuberculosis.* When first dissected, the bronchial tubes were, many of them, filled with tubercular matter, which could be followed to the injected and dilated cells ;—and often found projecting on the exterior of the organ. This matter has all fallen out by the action of the spirit, as in the last preparation. Most of the cells scattered over the surface, and half divided by the knife have been emptied in a similar manner, but are, however small, still lined by the dilated membrane of the cell which contained them. The transverse section of some air tubes, shews them yet injected with tubercular matter, one, a large tube, as big as the tip of the little finger, is thus filled now. It is situated just above the open vomica. Towards the periphery of the lung, some bunches of these injected air cells, have coalesced, and so pressed the pulmonary tissue, that it is ready to fall away in all directions. In the middle of the lung, towards the surface, most complete infiltration has taken place, the lung as solid as a piece of chalk. This lung almost wholly impermeable to air.

744. *This is a specimen, taken from a Hindoo woman, of pulmonary and of bronchial tuberculosis, with atrophy of the heart.* So many of the tubercular collections have accumulated at the surface, as to give a singular aspect to the lung, owing to patches of lymph deposited over them, in order to prevent effusion of their contents into the chest. In one instance, the free margin of the base of the upper lobe of the right lung, has no such protection, for the irregular dilated cells, containing the putty-like matter are only covered in by the pleura. The summit of this right lung has a number of dilated cells like a honey-comb for the most part empty. It has also one small anfractuous cavity, with a bronchial tube opening into it, and a number of empty cells such as would contain half a pea around it. As the right lung adhered to the costal pleura, in tearing it away, hundreds of emphysematous cells were opened upon its surface, giving it a ragged appearance over the lower lobe for about a hand's breadth, exactly rèsembling a sponge. This extends over its lateral aspect generally. The lobes are united together, and an irregular cavity, anfractuous and narrow, is practised therein, implicating both lobes. A large cavity covered in by a strong union of both pleuræ with the thoracic fascia, covers in a cavity occupying the greater part of the upper left lobe, the lower lobe of the left lung has a large

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* See Rokitansky—quoted London Foreign Med. Rev. January, 1843, p. 88.

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cavity on its external aspect, thickly defended ; the lung around black and compressed, upon this side the two lobes are united by adhesion and a thick layer of lymph, there also cavities exist having the form of bronchial tubes. Near the base which is resting upon and adhering to the diaphragm, cavities only covered in by pleura, and as large as peas are found ; some of them filled with putty-like matter. The heart reduced by atrophy to about one-third, the pericardium and endo-cardium generally opake.

1317. *A fine specimen of bronchitis in connexion with extensive disease of the heart from a Bengalee girl.* The right bronchus coated with fibrinous exudation. See p. 59. *Presented by Professor Stewart.*

549. *Inflammation, thickening, and ulceration of the glottis,* for which laryngotomy was unsuccessfully performed.

395. *Ossification of the epiglottis and cartilages of the larynx,* fracture of the cricoid cartilage, ossific deposition in the trachea. From an aged Armenian woman. *Presented by Professor O'Shaughnessy.*

548. In this preparation, *from an attempt at suicide,* the epiglottis has been cut off, with the root of the tongue also. Death occurred from the subsequent inflammation, nearly closing the rima. The papillæ circumvallatæ—are seen—the follicles behind the foramen cæcum much enlarged.

677. *Inflammation of tracheal lining membrane,* effusion of lymph, thickening.

662. *Inflammation of the trachea and larynx.*

885. *Tuberculous excavation of the lung.*

939. *Diffused abscess in the lung of an European,* who died at Dum-Dum. There is no attempt set up to limit the effusion in the organ itself, but a layer of lymph upon the apex had covered in the hole now seen, and prevented the contents being effused into the thorax as empyema, some isolated masses of calcareous matter are seen. See case p. *157. *Presented by Dr. Clark who remarks*—

" The Soldier was a fine athletic Scotchman, of about 35. He only arrived in India as an Artillery recruit a year ago, having previously been in H. M. 71st Foot in *Canada* for some years, and for some years *subsequently,* employed as a labourer in Scotland. There was slight adhesion of the right lung to the pleura, and fistulous excavations in the upper part, but the substance generally was crepitant, as was obvious during life. The diagnosis clearly indicated, an abscess with part of the lung respirable."

996. *Hemorrhagic lung from a native of Bengal,* who died of hœmoptysis. The bronchial tubes are still seen filled in many places with coagula of blood. Tubercles are seen scattered throughout the lung, and a central vomica with a tube opening into it, and another closed vomica at the apex of the lung. See case p. *158

998. *Gangrene of the lung from a Hindoo,* native of Bengal, a very fine specimen taken from the dissecting rooms, one slough has separated, opening a large mortified cavity, two or three more are upon the point of separation. The line of demarkation being well defined.

1002. *Another specimen of the gangrene of lungs formed in same way, also Hindoo. Presented by Mr. Phillipz.*

Nos.

1100. *Another, gangrenous lung*, also Hindoo. Presented by Mr. Norris.

1022. *Apoplexy of the lung.* The whole structure so permeated with blood as to make its section look like a divided clot of blood, caused by hypertrophy of left ventricle, from an European, see p.91; also Nos. 1021, 1023, and 1024 from the same case. Presented *by Professor Webb.*

1006. *Apoplexy of the lung, with hypertrophy of the heart, the apoplectic extravasations look like black spots of melanosis*, from an European soldier (see case p. 39.) Presented by *Dr. Clark*, who has kindly added the following notes to the case.

" The throbbing action of the heart, as felt by placing the hand on the cardiac region should have been noticed in the case. The fragment of *liver* will indicate the entire state of that organ. I regret that the *head was not* examined, the obvious and self evident cause of death not requiring further investigation. I wish however that I had looked at the spleen and kidneys,for your satisfaction. The general existence of inflammation indicated in the chest was manifest, I ought to have mentioned that something less than an ounce of serum of deep yellow tint, existed in the pericardium not quite translucent. The peritoneal coat and intestinal canal, generally healthy throughout. We observed the adhesion of the diaphragm ; and the peculiar *varicose* appearance at the base of the pericardium. I did not like to disturb the parts to enquire into the minute appearance within as I intended sending them to you."

1353. *Inflammations of the spleen, propagated through the diaphragm to the base of the left lung ;* the lower part of which is seen in the first stage of pneumonia, the upper white and healthy,* from an European boy, aged six, see p. 79. Presented by *Professor Webb.*

1000. *An abscess of the liver, ulcerating through the diaphragm and lungs,* which are in consequence broken up and disorganized, from a young Hindoo, native of Bengal, sent from the College Hospital.

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* It is well to bear in mind that partial pneumonia is common in young children ; it greatly aggravates the fever and rapidly brings typhoid symptoms. My own little boy and two other young children, exhibited these in this last cold weather—typhoid influenza. It is not possible to detect it without the stethoscope.

"Cattarrhal peneumonia invariably originates in a catarrhal affection of the air-passages, is a frequent result of pertussis, and almost invariably present, to a greater or less extent, in fatal cases of bronchitis, more particularly in children. The diagnosis is usually difficult in consequence of its affecting certain patches of the lung, often of small extent, and frequently occupying the centre of a lobe. In certain epidemics catarrh is peculiarly apt to take on this form, and the typhoid symptoms occurring, sometimes rapidly in the course of bronchitis, are frequently attributable to this complication, and the consequent increased impediment to the aeration of the blood. Hasse states that a further distinction between catarrhal and ordinary pneumonia consists in the presence of plastic exudation in the bronchia leading to the hepatised lobules. That there always is a bronchitis of the tubes in immediate connexion with the affected lobules is certainly true, but we much doubt whether the exudation is always, or even generally, of a plastic character. The very peculiarities of the pneumonia would be, in our opinion, an argument against this statement of Hasse. But the special character of this affection in a pathological point of view, are deserving of further investigation."

Nos.

252. *A beautiful preparation shewing acute inflammation of the pericardium, which is covered with lymph, and the pleura also.* Left lung united to the pericardium by layers of coagulable lymph, of great thickness;—lung has become inflamed at the lower part, œdematous at the upper part, and much compressed from the effusion of serum into the chest.

1327. *Extraordinary lenticular vegetations projecting out like small buttons from the costal pleura.* Taken from an old man, a Bombay convict, who died of dysentery. Presented *by Dr. Oxley, Singapore.*

829. *Abundant deposition of lymph upon the pulmonic pleura and diaphragm,* forming a fringe as thick as a finger upon the free edges of the lungs, and coating the surface in a less degree above; caused by an abscess, seen near the apex, bursting into the chest. See Nos. 252 and 621 and 1353

1018. *Granular tubercular depositions upon the pleura, causing effusion,* (*nine pints*) *compression of the lung, atrophy of the heart.* Tubercular depositions are seen closing the thoracic duct of one side, and iliac arteries partially:—from a Hindoo woman. (See p. 76) Presented by *Professor Webb.*

1328. *Diffused* abscess in the lung of a native of Bengal, the pulmonary tissue almost entirely gone, the cavity consisting of little more than the pleura,* (*distended with cotton*). The base and a small portion of the apex only having pulmonary tissue left. The sac is traversed by pulmonary vessels, and strengthened outside in some places by effusion of lymph. Presented *by Dr. Oxley, Singapore.*

1517. *A fine specimen of pneumonia, from a native patient, presented by Professor Webb.*

1341. *Tuberculosis of lungs, liver and spleen of an ourang-outang, abscess in spleen and liver, endo-pericarditis and arteritis,* see p. 80. *Presented by Professor Webb.*

638. *Apoplexy of lung.* One bronchial tube is plugged up with tubercular matter, the same deposit is seen in a small vomica. A part of a larger one is left its wall consolidated by effusion of fibrine, not so completely but that some vessel has given way, and injection of the lung with blood has followed:—*from a native of India.*

544. *Shews tubercular excavations in the base of the left lung.* One, large, lined by mucous membrane, coated with tubercular matter, communicating freely, with two, large sized, bronchial tubes. The inner wall of the cavity has been strengthened by adhesion to the pericardium, and below to the diaphragm. Other tubercular deposits, of various sizes, are also seen. Of these one is empty, communicating with a vomica, the others still partly filled with tubercular matter.

1005. *Emphysema of the lungs, from a Hindoo girl, brought to the dissecting rooms.* Presented by Tameez Khan.

244. *Œdema of lung, intimate adhesion to the pleura.*

243. *Œdema of the lung.* In this preparation, from the lung of a Hindoo, we see the cellular structure that unites the lobules, distended with water or serum ; perfectly transparent, like white lines, dividing the lobuli. The air cells are also distended with fluid, leaving the minute vessels, distinctly seen, ramifying upon their parietes. The lung sinks in the spirit, and is wholly unfit for respiration, every cell where air *should* enter, being occupied by fluid.

62. *Hepatization of lung, 1st degree.* Here is a portion of lung rendered unfit for respiration owing to the air cells becoming filled, with the thick, red, glutinous product of inflammation.* The connecting tissue is gorged with blood. When held to the light the contrast between the cells containing the inflammatory product and others that are empty is very striking. *Presented by Professor Webb.*

778. *Encysted tubercular matter, from the same lung.* Grey and red hepatization, resulting as products of inflammation, around those tubercular depositions, which are not yet softened. They do not communicate with bronchial tubes ; lung quite impermeable to air.

779. A nearly similar preparation, *one abscess has burst by sloughing of the pleura. Presented by Professor Webb.*

288. *Hepatization in the last degree,* in which the lung has become so changed by pressure from effusion within the cells, and by vascular engorgement ,without, that at its lower part no trace of air cells can be detected, even with the lens. It is more dense even than ordinary liver. The pleura adheres to the diaphragm ; and in that part which is free, is loaded with coagulable lymph of great thickness, shewing that it also participated in the inflammation of the lung ; no tubercles. *From a Hindoo.*

261. Another example *of encysted tubercular matter, from the lung of a child.* The large cyst is full of tubercular matter hanging loose and flocculent. It is lined with new membrane. It is projected beyond the level of the organ, at which point thick layers of adhesive matter have been thrown out, to prevent its effusion into the chest, to which the lung would appear to have been universally adherent, and below also to the diaphragm. There appears to have been extensive disorganization of the bronchial glands, owing to the presence of tuberculous matter.

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* The seat of pneumonia, Rokitansky holds to be the walls of the air-cells, that is the pulmonary mucous membrane ; so that it might be defined a "parenchymatous croup." "The characteristic granulations are produced by the product of inflammation deposited in the cavities in the air-cells. Their formation, that is, the exudation, is preceded by the secretion of a sticky, rough, reddish-brown fluid into the cells, which produces the well known *rale crepitant*; with the hepatization this diminishes, and the pulmonary cells are filled by plastic exudation. The granulation is at first roundish, dark red, rather hard and brittle, and appears, as it were fused with the swollen dark red wall to the cell, and is difficult to isolate and extract. But as the inflammatory turgescence and the redness of the tissue moderate, the granulation itself becomes paler, reddish-grey, and at last yellowish-grey, its cohesion diminished, and it swells up a little. A secretion of a glutinous mucus ensues around it, its connexion with the wall of the cell is rendered looser, it becomes more distinct, and appears to be inclosed by a bright red cell-wall, which makes it the more distinct the paler it grows. Lastly it melts down into a puriform fluid, mixed with the glutinous mucus." (p. 90.) Rokitansky, Brit. For. Med. Rev. January, 1843, p. 86.

641. *Abcesses in both lungs, of a* HINDOO *and most remarkable atrophy of the heart, the lungs also atrophied from compression*; caused partly, by the adhesion of the pericardium and lungs, but *chiefly* by the effusion of pus (empyema) into both pleuræ; extensive excavation of the lungs themselves, into the abscesses which furnished the matter. An abortive attempt was set up, in the upper lobe of the *right* lung, to limit the abscess. Thick layers of fibrine form a lining to the apex of the lung, the pulmonary tissue is more consolidated than elsewhere, whilst a part of the abscess seems to have formed between the pleura pulmonalis and costalis. The matter, however, has made its way downwards dissecting the lung from top to bottom, till it became a mere cyst, communicating freely with the cavity of the chest, by a wide opening, that would admit the top of the finger. The distinction of lobes is lost by adhesion, the lung adheres intimately to the draphragm and pericardium, stretching in front of the latter, to reach the opposite lung, and almost entirely conceals the shrunken atrophied heart, (no bigger than an orange,) so much is this hidden, that I was quite at a loss to know, what had become of this important organ.

The same description will serve for the *left* lung, excepting that its adhesions were universal, and scarcely any portion whatever left permeable to air. *Presented by Professor Webb.*

1404. *Universal inflammation of the viscera of the chest, in a Native of India, both lungs generally united to costal pleura. Heart atrophied, Pericardiac cavity obliterated*, by inflammation of the heart and pericardium.

The right lung, beginning from below and passing upwards, shewed every degree of sthenic inflammation, only a little portion of the lower front edge was sound, and this had what *felt* like tubercles, but what, were really lobules distended, the air cells being filled by fibrinous matter undergoing the tubercular transformation. Above this, comparatively healthy part, pneumonia is seen in its first stage, above this, pneumonia and tubercles, above this again, suppurating, softening pneumonia, above this, a recently ulcerated cavity full of sanious pus, and red granulating projecting tissue in it. *Left lung*—the costal pleura adhering all over it greatly thickened; some places thick as the most thick portion of the diaphragm, a little healthy lung in the centre, all the rest hepatized or broken up into cavities, or in the sodden softened state of general suppuration. *Presented by Mr. Minas.*

1405. *The worst effects of universal and of uncontrolled asthenic pneumonia.* The right lung is intensely inflamed, all over; dark red and in some places black. The left lung almost universally pale, and gangrenous, the lower lobe about to separate as a slough; the heart deeply inflamed inside, the fatty deposition diffused for a line or two in depth outside, the aortic lining internally deep red. The trachea coated with granular fibrinous matter. *Presented by Mr. Minas.*

1410 *Shows tuberculosis of the bronchial glands, of the cervical glands and of the lungs, obliteration of the left pulmonary artery,* from tuberculous matter.* The whole of the mesenteric glands were enlarged, with tuberculous deposits. Taken from a young Hindoo woman brought to the dissecting room from the ghaut. Presented by Mr. J. Sheetz.

Pulmonary artery of the left side entirely obliterated, immediately after its division and where it passes through the middle of one of the enlarged glands, above the left bronchus. The artery is distended by a substance which in appearance is intermediate between fibrine and tuberculous matter, this fills up the whole of the cylinder of the artery, and is as thick as a little finger, and also its sub-divisions, even to branches the size of a crow quill.

1489 *Apoplexy of the lung from the blood being driven into its tissues from an aneurism* of recent formation at the aortic arch. The diseased, atheromatous, ulcerated condition of the vessel is very striking: from an European sailor, who died from the aneurism bursting. *See Case No.* 1439. *Presented by Professor Jackson.*

1506 *Emphysema of lungs, hepatization also, and pericarditis.*—in a Hindoo child, a boy, *presented by Tameez Khan.*

1509. *Specimens of emphysematous lung from a Hindoo* presented *by Professor Webb.*

1510. *Pleuropneumonia—numerous cavities in both lungs—no tubercles endopericarditis, and atrophy of heart:*—from a Hindoo girl.

1511. *Pleuropneumonia, a fine specimen showing the transition state between tubercular deposition and fibrinous. Aortitis also seen.*

981. *Pluropneumonia, pulmonary tuberculosis endo-pericarditis. A very striking case see case,* 69 *presented by Tameez Khan.*

1512. *The bifurcation of bronchi and portion of lung of a giraffe which died asphyxied, from food plugging up the tubes:—presented by Ed. Blyth Esqr. from Asiatic Soc.*

1438. *Lungs and heart from a phthisical native patient, of the Howrah Hospital, presented by Dr. Green. Left lung* broken up into innumerable vomicæ, some at the upper part coated with tubercular matter, some at the lower presenting only sloughing tissues, adhesions below to diaphragm and elsewhere to walls of the chest. Bronchitis of some bronchi which were dark red colored, whilst others were white and sloughing. *Right lung* free—partly lobulated from tuberculous injection—partly free from any trace of tuberculosis. From below upwards we find 1st healthy lung, 2d red hepatization, 3d grey tuberculosis of lung. *Heart atrophied, organized coagula in right and left ventricles and auricles, lined by false membranes prolonged upon the adjacent valves, in which vessels apparently ramify.*

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* An instance of arctation of the pulmonary artery is given by KREYSIG in the tables of TIEDEMANN quoted p. 415 Edin. Med. Surg. Jour. for April 1846.

PATHOLOGY OF AIR PASSAGES AND LUNGS.

CASES.

CATARRH—INFLAMMATION OF FRONTAL SINUSES.

(*By Allan Webb, Esquire.*)

℞ Pulv. Rhæi gr. viii.
Calomel gr. iij n. sum.
℞ Ant. Tart. gr. i
Mag. Sulph. ℥ss
Aqu. ℥viii. Capt. coch. ij amp. 4 horis
Fomentations to the nose and forehead.

A widow, æt 37, complained towards the latter end of May of pain in the forehead, which she described as constant, though more severe at one time than another; a tense pain, as if pushing out the bone, and when a severe paroxysm occurred, rendering her for a time nearly insensible, and going off with a profuse discharge of tears. When very severe she could scarcely see any thing. On asking her to point exactly to the seat of pain, she accurately marked with her finger the course of the frontal sinuses, saying "it seemed in the bone." On further enquiry she informed me, that being much exposed to currents of air, she had for months past been subject to catarrhal affections of the pituitary membrane, latterly the discharge was of an offensive odour and more profuse, but had stopped a few days before the accession of this pain. The skin covering the frontal sinuses was swelled, red, painful to touch, sides of the nose swelled, particularly the lacrymal sac. I concluded she laboured under inflammation of the membrane lining the frontal sinuses, ordered some medicine (as per margin).

June 1st 7 P. M.
Rep. Mist.

Medicine had operated well, but without relief of pain which was now altered in character, and more diffused over the head, being felt chiefly at the sides and top, skin hot and dry, indeed remarkably harsh, tongue covered with white fur; fœtor of breath. Pulse between 80 and 90; no appetite; could not sleep for pain; ordered a warm bath.

June 2nd, 7 P. M. Much worse; countenance remarkably changed, anxious expression, features sharp reminding me, of typhoid patients, great prostration of strength intollerance of light and sound, tense pain at the top of the head and on the sides, described "as if forcing out the bones," great prostration of strength; slight stupor, no pain of forehead, feet cold, carotids pulsating strongly, head hot, skin harsh, dry, tongue covered with white fur, great thirst, slight stupor, or at least heaviness, unwillingness to answer questions pulse 78, very hard; offensive breath.

June 3rd.
℞ Acid; Hydrocyanic. (Gardner) ♏ x.
Vini Semin, Colch. ʒij
Mag. Sulph. ℥ss.
Aquae ʒviii. M.
Capt. coch ij. larg. 2nd quaqua. hora, Tea and toast water, beverage.

I determined to remain with her all night. Applied hot flannels to the feet, with relief, gave her plenty of fresh air, had her covered lightly, she had a little (*disturbed*) sleep, low muttering delirium, "*complained grievously of her room window being all on one side.*" Head very hot; as she could not stand, I got hot water and placed her feet in it, as she sat on the bed, in this situation bled her to eight or ten ounces, with very marked relief to the head, and almost entire cessation of pain; but wishing to produce a decided impression, I did not stop, although she began to feel sick and the blood flowed in a very small stream, until she fell back, nearly, though not quite in a state of syncope. Then before tying the arm up, well dried the feet, wrapped them in warm flannel, and placed her in the horizontal posture. The pulse now became soft, she fell asleep, and awoke in two hours very much refreshed, better than she had been for days.

Morning. Pulse eighty, soft;—light and sound less painful. She slept well most part of the night, taking the medicine every two hours, skin moist, but so weak could not sit up, no delirium, after being sponged, mouth freed from fur, and dressed in clean linen, expressed herself easy and comfortable.

June 4th 2. P M. Had taken no medicine for four hours, pain of head returned, skin hot and dry, pulse hard; she is peevish and restless, applied six leeches to the temple as I could not get cupping instruments, they bled well, relieved the pain. By 6 o'clock pulse became again soft, she became again feeble, this prostration increased so much as to induce me to relinquish the medicine, and about 2 A. M. she was so reduced that I could with difficulty feel the pulse; at 3 A. M. feet became cold, and I felt authorized to give stimulants, but had nothing in the house except brandy, of which I gave her a couple of teaspoonsful, she fell asleep, slept soundly, for two or three hours.

June 5th
℞ Pil. Sap. c̄ Opio. gr. v. n.

Awoke refreshed, and in perspiration, gave her no more medicine. She continued much better till the afternoon, diarrhœa came on, and was so troublesome at the same time weakened her so much, that she required opium. Had disturbed sleep, some return of pain, tongue dry, diarrhœa still continuing. To take barley water.

6th. Had a bad night, disturbed sleep, skin hot and dry, tongue dry, great thirst, pulse eighty, slight pain of head, to take rice biscuits and jelly, no pill.

7th. Very much improved, countenance cheerful, return of appetite, skin cool and moist, tongue cleaner, bowels quiet, pulse seventy-four. To continue same diet, no medicine. N. B She observed, a discharge from back part of nostrils into the throat, which I recognized as pure pus.

8th. Not so well, having taken a dose of castor oil (without orders,) it had so acted upon her bowels as to induce great weakness, loss of appetite depression of spirits, &c. To have no medicine, more generous diet.

10th. Quite recovered.

PURULENT EFFUSION IN THE NECK COMPRESSING THE AIR PASSAGES AND CAUSING DEATH.

(By Allan Webb, Esq.)

Ensign G———, aged about 24, had been afflicted with mental derangement about six months. But had not been violent, nor had he required confinement. Whether he had been under medical treatment, or in what that might have consisted I know not. He had lately been in charge of Dr.——, who sent for me to see him August 29th, thinking he had taken poison, but the strictest enquiry seemed only to strengthen the conclusion that he could not have in any way obtained it, (the berries of a species of Arum he might have obtained).

His face and neck at this time were exceedingly swollen, his lips livid and respiration difficult, heart acting violently, head hot, pupils dilated. On more attentive examination, it appeared that the swelling was confined to the salivary glands. The sublingual glands projected out in front of the tongue on both sides, and above the level of lower teeth, and prevented articulation. The parotids were enormously swollen and the submaxillary also. The cellular tissue at upper part of sternum was red and swollen. Pulse irregular and the rapid secretion of saliva or mucus in danger of choking him. Chest sounded healthy, and by stethoscope the obstruction to respiration appeared confined only to the upper part of trachea and larynx. His mind irritable and excited, he would frequently start up and run naked from his room, till his feet were secured. Bowels confined.

Leeches 70
Hot fomentations.
Ol. Ricini. ℥iss. stat.
Mist Camph. ℥vj.
Mag. Sulph. ʒiij.
Ant. Tart. gr. iij.
Coch ij. vel. iij. 4 tis horis. s.
Bowels open from the oil.

These soon afforded considerable relief; about two o'clock in the morning of August 30th sent for again as it was believed he was dying. He had great oppression of respiration and anxiety of countenance, cold extremities, blue lips, and intermitting pulse, with loud mucous rattle, which by the stethoscope I found was principally about the larynx. But his efforts to get up the phlegm were ineffectual owing to the inflamed and swollen state of parts about the mouth and throat. By giving him hot tea (to the imminent risk of suffocating him in the struggles to avoid choking) he dislodged large quantities of ropy mucus and at last succeeded to swallow. The circulation returned. Extremities became warm. Color returned to the lips, and he could articulate so as to be understood.

31st.
Hirud. xxx. tempor. cold cloth to head.

Poor G — is better, fever less, swelling less, swallows more easily, has taken his mixture every three hours, bowels open, stools natural.

In the evening very feverish again with extreme heat of skin, and pulse 130 with violent action of the heart, and increased dyspnœa, *He told me to-night of having stabbed himself in the throat some days ago* with a scalpel used in dissecting a dead hound. The wound must have implicated the sub-maxillary gland, but it is now healed; and had healed four days previously to this inflammation, and was inflicted eight days before. I cannot but look upon this as the exciting cause of all the mischief, since there is no evidence of poison, his stomach was never affected, neither were his bowels.

Sept. 1st.
Repet Lot.
Repet Mist.
Calomel gr. viii.
Rhœi Pulv. gr. x. ex.
Gelat. s. s.

Is quieter, more free from pain, speaks and swallows and breathes more easily, countenance still sunk and anxious, head hot.

2nd. Heard he was better, did not see him.

3rd. Had a good report.

4th. Dr. —— saw him in morning and thought him better.

10 A. M. Called to him, respiration again oppressed, from accumulated mucus which I could in no way get him to discharge, countenance anxious, tossing in bed, with agonizing attempts to get rid of the mucus, asked me to try with my finger to reach it, which I did, but little adhered to the handkerchief. Succeeded in getting him to swallow about a scruple of carbonate of ammonia which raised the pulse a little, but his respiration became more and more difficult, the brain oppressed and insensible, the extremities cold, the pulse sinking rapidly, at last stopped, and thus ended the scene.

Examination 12 hours after death.

General appearance.—The body was exceedingly emaciated. There was a black appearance extending from the situation of the scar in the neck, to the face on right side, and some discoloration about the cheek of left side, but not in the neck; on examining the wound it readily opened by slight pressure and disclosed a deep black putrid course or sinus.

Head—The skull cap adhered strongly to the dura mater, there was slight effusion between this latter and the arachnoid. This last exhibited a strange blistered appearance, all over the top of the brain, owing to serous effusion beneath it; on the top of the left lobe it was very much thickened, and quite opake. At the base of the brain the evidence of inflammation was very slight, and but little effusion; neither was there much fluid in the ventricles. The choroid plexuses were however blanched. And the substance of the brain softened, externally more red and injected than usual, and when sliced pouring out red blood in innumerable points, which were larger than I ever saw before. The sinuses and veins leading to them gorged with blood.

Neck and Chest.—Reflecting the skin from the mesial line of the neck by means of an incision continued along the base of the jaw, I was able to have it turned back from the line of the sterno-cleido-mastoid, and expose all the parts immediately connected with the wound. By means of a probe I then found that the scalpel which made the wound, had entered near the angle of the jaw, had wounded the submaxillary gland, but not touched the main artery nor the vein; yet had *passed between the division of the carotid* into external and internal, without wounding either, though the former was blackened from its external cellular sheath being cut. The muscles were blackened and softened, the cellular tissue infiltrated with matter, and matted so as to render it difficult to recognise parts. The thyroid, maxillary, parotid, sublingual glands, all in various states of suppuration, so as to make it impossible to define them, the same with the glandulæ concatinatæ. The masseter muscle was swelled and broken up by purulent infiltration, and the cellular tissue infiltrated as far as the thymus gland behind the sternum. All the glands on the opposite side were in the same state. And even the cellular tissue between pharynx and spine. The tongue was small, rounded, compressed backwards by the swelling of sub-lingual and sub-maxillary glands.

The cellular tissue about epi-glottis and chordæ vocales infiltrated of yellow colour. Upon the right side the chorda was of a deep red or purple colour and much swollen though protected by the ala of thyroid cartilage from the knife. This cartilage was blackened and the muscles outside it in a state of decomposition. Mucous membrane generally paler than natural both in esophagus and trachea, the latter contained much frothy mucus, which had accumulated about the ramification of the bronchi to such a degree as to occasion suffocation ; here also the mucous membrane was unusually pale. On slicing the lungs, an amazing quantity of frothy serum oozed out, but this infiltration was chiefly confined to the back part, they were in other respects healthy.

The heart pale and small, a great quantity of serum in pericardium ; but in the large vessels I could not detect any pus.

Abdomen. Liver healthy, mucous membrane of stomach pale and softened easily scraping off ; an intussusception was found in the jejunum and six more in course of small intestines, some larger than others. No effusion of lymph outside, but great redness of the mucous membrane within. One of them about ten inches long was doubly invaginated, and contained nearly a yard of intestine when unravelled ; intestines generally empty, bladder distended with urine, other viscera healthy.

Reflections. Might not properly directed constant attention have cured the cerebral affection ? I have seen apparently worse mischief remedied.

Ought not the wound to have been prevented from healing outside until granulations had begun at bottom ?

Deductions. Death caused by mechanical pressure on the bronchia and larynx, preventing escape of mucus; and also by sphacelus of the levators, and depressors of the larynx, and inflammation of its proper structure: thus suffocating the patient. This pressure, swelling and suppuration of glands, &c. was caused by inflammation from the wound he inflicted on himself.

ANEURYSM OF AORTA—ULCERATION OF TRACHEA—ŒDEMA OF LUNGS, &c.

(*By Allan Webb, Esq.*)

March 26th 1832. Mary Anne,———, a widow, aged 46, dark complexion, hair and eyes ; had good health till six months ago, when catamenia stopped in consequence of exposure to cold and over-exertion, this was followed by cough, pain in chest and expectoration of thick mucus.

About a month since spat blood, at first dark afterwards florid, perspired much at night, lost appetite and flesh.

℞ Tinct. Opii ʒj
Ammon Carb ℈ij.
Vin. Ipecac. ʒiij.
Mist. Camph ℥viii.
Ether. ʒi. s

There is great difficulty about pulmonary circulation. Lips and face livid, respiration laboured, extremities cold, rale sonore is heard over nearly the whole chest, particularly in region of xiphoid cartilage, mucous rattle loud, together with difficulty or inability to expectorate (pectoriloquy distinct on right side both anteriorly and posteriorly about supra clavicular region) sputa in round yellow masses mixed with glairy fluid, very copious, action of heart natural, pulse 86, skin harsh, dry, bowels regular, appetite bad, sleeps little.

28th. Called to her 5. p. m. she is dying.

Examination of body 20 *hours after death*.

Body considerably emaciated, right arm and side more than left.

Head—Presented no other morbid appearance than slight serous effusion ; brain somewhat softer than natural.

Chest—Lungs did not collapse ; pale grey externally, pitted on pressure, old cellular adhesions to pleura were seen on right side ; on slicing, serum flowed out plentifully from divided edges, appearance that of solid flesh. Left had grey hepatization in middle, lower lobe appeared to have undergone recent inflammation was of blood-red color, pus oozing out of numerous bronchial tubes. Larynx paler than natural, except over bifurcation where it was dark red. Two or three *ulcers* existed in anterior part of the trachea going right through its substance, and communicating with an aneurysmal cyst, the opening being plugged up by coagula, bronchial ramifications filled with watery frothy sputa.

Heart healthy—Between top of aortic arch and the arteria innominata an aneurysmal sac had formed, size of thyroid gland, of old standing, walls being dense and firm like those of an artery, it communicated with the ulcer in the trachea, carotids and subclavians of usual size, healthy.

Abdominal viscera healthy.

REMARKS. Patient died asphyxied.

ABSCESSES CONTINUOUS THROUGH NECK, LUNGS, ADN PERICARDIUM.

No. 1033.

(*Presented by Tumeez Khan, Medical Student.*)

About the month of January 1846, a Mahomedan Lascar, æt. about 40. was brought into the Surgical Ward of the Medical College Hospital under the following circumstances. The patient looked very anxious and distressed, and a degree of pallor was spread over his countenance. He had a very soft pulpy tumour situated at the lateral cervical region of the right side ; this swelling he stated to be extremely tender, and excessively painful, and further that it commenced suddenly about a fortnight ago, and continued increasing rapidly till it assumed the present size, of about a common orange, is very soft and elastic, and void of any pulsation :—stated also that the swelling has been very troublesome, and for the last four or five days has been considerably interfering with the processes of deglutition, and respiration, (from pressure on the pharynx vessels and nerves). His voice was much affected, and latterly became very husky. His skin was not hot but natural, the pulse weak, his bowels were obstinately costive, there was want of appetite, and the tongue foul. Besides these (as far as my recollection goes) I think the patient did not complain of any thing; he was questioned as to having had any fever, rigors, any pains, or any oppression in the chest, and so forth, and all these questions were answered by the patient in the negative.

The patient was ordered to have poultice applied; and the case was treated as one of abscess. " His bowels were very costive, and were not moved until 10 grs. of Hydr. Subm. and 10 grs. of Ext. Colocynth, Co. were repeated three times." On the 2nd or 3rd day, the swelling became very painful, and showed a little redness, then about half a dozen leeches with fomentations, were applied, and these seemed to have stilled the pain somewhat and diminished the size.

On the 5th day, the swelling burst, at the place where one of the leeches had bitten rather deeply, and this gave vent to a copious discharge of thick yellow matter. The whole of that day the patient looked very pale, weak and exhausted, towards the evening he was vexed with a troublesome hiccup, there were occasional breakings forth of cold clammy sweat, and the strength was gradually prostrating. At about midnight the patient expired. *Before the night of dissolution and after the breaking of the abscess, his breathing was a great deal relieved.*

Post Mortem Examination.

When the body was examined, the following were the appearances noticed: A probe was passed through the abscess, and it went downwards towards the chest, and under the clavicle, therefore the chest was examined. The abscess was ultimately shewn to have opened into the pericardium and œsophagus as well as the lungs. It was found that the uppermost lobe of the lung of the right side had a cavity in it, and this was empty, its upper part had ulcerated, and the matter which was contained in it made its way up beneath the clavicle to that part where the tumour presented during life, implicating the glands there, and forming an abscess, and this lastly gave way. The course of the matter was distinctly seen, as there was a regular semi-cartilaginous state of the soft parts through which the pus made its way up; the bones were black and discolored.

The heart was also observed to be inflamed, and the muscular substance rendered extremely soft. The pericardium and the outer surface of the heart looked like the villous coat of a calf's stomach, and presenting a honeycomb appearance. The lungs in other respects were healthy.

On submitting this remarkable specimen to **Professor Webb** for further examination, he pointed out that the œsophagus had been opened by ulceration about its middle. In this situation the outer surface of trachea is seen exposed, and the matter of the abscess had burrowed upon both sides, indeed all around it. The vessels and nerves, especially the recurrent, lie also exposed. Just about the bronchial divisions in the spot marked by the bronchial glands, another ulceration has gone through the œsophagus, having a ragged irregular border exposing the glands, and the right bronchus, but not opening into that tube. On the posterior side of the right bronchus, the matter has passed downwards, and has *opened the pericardium by a wide orifice that would admit the finger.*——Hence the pericardium must have been distended with pus. *From this irregular ulcerated cavity a probe passes upwards, half way up the neck, downwards, into the pericardium, backwards, into the œsophagus, side-ways into a large diffused abscess at the upper part of the superior lobe of the right lung.* This last abscess was covered in by the pleura and by the thoracic fascia, and deep cervical fascia. The whole interior of the pericardium resembles exactly the villous coat of the stomach, from the effusion of lymph upon its surface. The endo-cardium opake throughout. The aorta has its internal membrane dark colored, and villous, with patches of atheromatous appearance about the top of the arch. The muscular structure softened and pinkish. The lungs of both sides do not present a single tubercle, but are œdematous throughout. The trachea so filled with minute ulcerations as to look like lace, this is continued a short distance into the bronchia. No tubercular matter in the lungs, nor even in the bronchial glands. Considerable adhesions of the opposed reflections of the pleura on both sides of the chest.

PLURO-PNEUMONIA—BRONCHITIS—SPHACELUS OF ŒSOPHAGUS, EFFUSION OF ITS CONTENTS INTO THORAX—ABORTION—DEATH. No. 1380.

(*Abridged from Clinical Report by Tameez Khan, Medical Student.*)

July 25th 1846.
5 P. M.
℞ Hydr. Sub. gr. iv.
Extr. Coloc.Co. gr. vj.
Ant. Pot. Tart. gr. ¼
M .ft. Pil. ij. H. S. S.
℞ Pulv. Jalap. Co. ℈ij.
Aq. Menth. Pip. ℥i.
Mane s.

Admitted into the Female ward of the Medical College Hospital, Louisa Gonsalves, æt. 23, a thin, weak, black complexioned, sickly looking, Calcutta Portuguese female; labouring under the following train of symptoms of about fifteen days duration.

At present she is suffering under a violent attack of fever, her skin is hot and dry, head hot, not much headache, countenance flushed, tongue furred, dry and white, great thirst, vomiting, extreme gastric irritation; she has much cough, and a sensation of constriction and tightness within the chest, breathing hurried and puerile, expectoration glairy but scanty. Pulse very rapid and easily compressed. Bowels costive, and have not been moved for the last four days, there is complete anorexia.

She states that she was one night, about a fortnight ago, obliged to go out of her house, and when returning she met a very heavy shower, and at this time the wind was blowing very strongly, and thus she was all wet from "top to toe." About a couple of hours after she reached her house, she felt very chilly and this was followed by a violent paroxysm of fever; and since that time (onset) she has never found herself perfectly free from fever, though generally at the morning hour she feels relieved somewhat from the extreme distress. The cough and the pulmonic distress followed about three days after the febrile onset. She states that she is the mother of six children, and is now in the fifth month of her seventh, all her previous labours have been very natural.

26th.
℞ Tr. Digitalis. ʒi.
—Scillæ ʒii.
—Opii. ʒi.
Ant. Pot. Tart. gr. ij.
Aqua. Tart. ℥xij. M.
ft. mist. An ounce
every two hours.

Patient had two stools last night, and has taken the purgative draught this morning, passed a bad night, cough very severe, expectoration glairy and mixed with little frothy mucus, breathing hurried and mostly puerile, does not complain of any pain any where, her skin is still hot and dry, pulse soft but rapid, tongue clammy, and much thirst, percussion elicited rather a dull sound on the whole of the right side, and the left side tolerably clear. On the stethescope being applied the vesicular breathing was not audible on the whole of mammary and submammary region of the right side, nor posteriorly, and the rest of the chest was resonant enough.

29th.
℞ Acid. Sulph. Dil.
M. xx.
Zinc. Sulphas. gr. ij.
Liq. Opii. Sed. M. x.
M. ft. Haust. St.

Patient states that she has been very much purged and cannot take the medicine, pulse soft and small, breathing a great deal relieved, expectoration thick, and yellowish, skin cool and moist, tongue clean and moist. There was slight discharge of blood from her vagina, which was checked by a strict tranquility both of body and mind being enforced, and a little of T. opii. with pot. nitras being given.

30th.
℞ Ant. Pot. Tart. gr.ij
T. Opii. ʒi.
Aquæ. Puræ. ℥xij.
half an ounce every
half hour,

The hemorrhage had not recurred. She had two stools, did not sleep well, does not complain of any pain anywhere, distress about respiration aggravated, the cough being violent and unattended with any expectoration. Skin rather hot and dry, tongue red, pulse soft but quick, has no inclination for food, thirst urgent, urine voided not very freely.

August 3rd 1846.
Cont. Med.

Patient does not seem to be any way better; breathing very much distressed and hurried, expectoration brought on with extreme difficulty and with considerable muscular efforts, skin cool and perspiring, tongue clean but red, vomited twice since the last evening, pulse soft and small; had four stools since the last report. She has no inclination for food, states that she feels a peculiar indescribable sensation, more "pain like" than any thing else, within her chest and belly.

7 P. M. Patient is troubled with a very severe cough, breathing rendered extremely difficult and laborious, and both of which offices requiring (on the part of the patient) very considerable muscular strain.

She complains of slight pains at the hypogastric region and a dragging down sensation at the loins, pulse very soft, skin moist, she has had a couple of stools since the morning report, ordered to be kept quiet, and continue medicine.

4th 10. P M. All on a sudden the patient miscarried at this time, the fœtus, in about its sixth month, with the secundines, followed at once the gush of the "breaking of the waters." The patient immediately after this became quite pale, exhausted, her countenance blanched, and she lay prostrate on the floor ; her pulse soft and thready, skin cold and covered with copious cold perspiration.

℞ Liq. Am. g. xx.
Spt. Æth. Sulp. ʒss
gt. xxx.
T. Opii. gt xv.
Mist. Camph. ℥i. M.
ft. Haust. St. The draught was repeated three times.

After the third dose her pulse got up a little, and the skin became warm, however her countenance looking very anxious, the fit of cough recurred with violence without any expectoration, and remission, she ultimately at about three in the following morning expired.

Autopsy 6 hours after death.

Chest.—The lungs were strongly adherent to the pleura costalis, and particularly so on the right side, on the left side of the chest there was observed the contents of the stomach effused, mixed with drops of castor oil. The outer surface of the lungs was universally covered by thick layers of lymph, which in many places have been rent asunder, some of the pulmonic lobes are adherent to each other by recent fibrinous bands. The texture of the lung universally carnified, and all over (without a single healthy place) studded with minute miliary tubercles. On pressing any of the cut surfaces of lung, a muco purulent matter exudes from the miliary spot. In the upper lobe of the left lung the tubercles are more approached, and one or two masses of calcareous matter were seen, but in no place have any of these suppurated. The trachea and bronchi highly inflamed, their inner lining of a vivid crimson color, in some places there are greenish patches indicating approach to gangrene. About half an inch before the trachea bifurcates into the bronchial tubes, it is seen to have a longitudinal slit on its posterior or membranous wall, and which rupture may, I, think, have been caused by the violent efforts to cough. This rupture is not quite through, but still there is some cellulo-fibrous tissue which separates it from the œsophagus. The heart seems to be tolerably healthy, except a slight softening and thickening of the left ventricle. The aorta is generally intensely vivid red internally, in some places, at the root of the brachiocephalic vessels it is blistered up. There are also a few opake spots of ætheromatous deposits. This crimson velvetty color of the aorta, extends from the left ventricle to underneath the diaphragm.

The mucous membrane lining the œsophagus (except about 4 or 5 inches at the uppermost part) is generally softened, greenish, and in some places completely sloughed off. Before the œsophagus empties itself into the stomach, and where it lies in the cavity of the chest, all the textures composing it are utterly disintegrated and sloughed off, leaving a greenish black colored hole. The remaining part, indicating its original connection with the stomach, is so softened that even the most cautious handling cannot help tearing and destroying it thereby. The mucous membrane lining the stomach at the cardiac orifice, especially of a greenish black color, softened and sloughing, the cardiac end, just at its junction with the gullet sphacelated. The diaphragm, from contiguity, also ulcerated and sloughed. The liver was rather gorged, the rest of the abdominal viscera tolerably healthy.

The uterine organs were just as they are met with at the period of gestation.

Sloughing of Bronchial Tubes &c. No. 1353.

Admitted into the Hospital this day, 14th May, 1846, A. Cararo, æt. 24, a native of Bombay, a cook by occupation, laboring under an attack of Bronchitis of a year's standing. States that whilst coming round the Cape of Good Hope, after having been exposed to wet and cold for some days he was seized with a slight cough which at first troubled him little, but gradually has assumed its present state. Has taken no medicine since the attack in consequence of a physician not being attached to the vessel. At present the patient complains of tightness about his chest; a cough which harasses him very much, being attended with very little expectoration; it is more severe during the night; skin hot and dry; tongue foul and furred, there is excessive thirst, a quick pulse, disturbed sleep owing to the troublesome cough; appetite pretty good; and bowels regular. The matter expectorated is a tenacious white substance, mixed with a little forth.

Hirud. iv. to the top of the chest.
Pulv. Jalap. Co. ʒi. St.
Ant. Pot Tart. gr ij
Aqua. ℥viij. ft mist. ℥i. every two hours.

15th.

The cough still continues to be very troublesome, and the patient had disturbed sleep in consequence; skin cooler; tongue slightly furred; excessive thirst; pulse quick; appetite pretty good; bowels moved once since yesterday.

Hirud. iv. to the chest
Ant. Tart. gr. ij.
Aqua. ℥viij. ft. mist. ℥i. every two hours.

June 1st.

The patient passed a very comfortable night; the cough was not at all troublesome and he expectorated freely this morning, the sputa are thinner, mixed with saliva; there is no pain felt on the chest now; his skin is cool; tongue clean; appetite good; pulse feeble and quick; bowels moved once since last report.

Wishes to leave the Hospital, discharged almost cured.

Re-admitted after 32 *days and the case supplied by Mr. Forbes, Ceylon Medical Student.*

Grey Mixture.

Admitted into the Medical ward of the College Hospital last evening the 4th July, Anthony Cararo, ætat. 24, a Portuguese, under the following circumstances: the patient is considerably emaciated, coughs very much, particularly at nights; expectoration copious, muco-purulent contains no blood, respiration slightly hurried, does not complain of pain about the chest, but feels an oppression about it; the thorax is contracted, the clavicle prominent, feels more comfortable when his shoulders are elevated; his skin is dry, tongue red, pulse quick and small, bowels regular, and appetite good.

The disease is of a year's standing, states that he was under treatment in this hospital a few months ago for his cough.

July 5th. He is much in the same state; the left side yields dull sound on percussion in the space between the clavicle and the mamma, the upper part of the right side is preternaturally resonant above the mamma, cavernous respiration and pectoriloquy are audible in this spot.

6th. Continues the same.

7th. No material improvement observable.

8th. Plumbi. Acet. gr. v Tinct. Opii. ʒss. Acid. Acet. Dil. ʒi. Aqua ℥i. ft. mist. St. The patient coughed and still continues to cough up a quantity of florid blood, mixed with purulent matter ; pulse small and rapid, tongue red, skin dry and bowels regular.

9th. Cont. the same. Expectoration still bloody, skin dry, tongue red, bowels regular, pulse small and rapid, countenance has a cadaverous appearance.

10th. 10 A. M. The patient is changed for the worst, and sinking fast.

11 P. M. Expired.

Autopsy seven hours after death, reported by Mr. P. A. Minas.

The Chest was opened, the lungs with the trachea were removed from the body, the lining mucous membrane was highly inflamed, with small patches of sloughs at the division of the bronchial tubes. At the commencement of the right bronchus sloughs and granulations existed, and about an inch below ; no other trace of bronchial tubes were observed, but their sloughs only.

Destruction of the interior structure of the upper lobe of the right side of the *Lung* was now seen, forming a large vomica, the sides of which were soft, and smeared with greenish puriform matter. In the middle division of the right bronchus a coagulum was seen the result of hœmorrhage from a vessel implicated in the sloughing. The lowermost portion of the same side (right) seems to be œdematous. Left lung is a mass of disease, similar in character to the right ; all the ramifications of the bronchi were sphacelated and destroyed. On the uppermost part a similar cavity to that on the right lung was seen, the posterior wall of which is formed by the pleura pulmonalis and the reflected pleura costalis which is adhering firmly. The lower lobe indicates the second stage of pneumonia. Both the lungs superiorly almost entirely gangrenous. No tubercles could be traced in any part of the lungs.

The Heart looked flabby, sodden, outer membrane opaque, and a line of deposit was seen like fat beneath it ; the substance reddish brown. On opening the heart the root of the tricuspid valves were found opaque ; spots like blisters were scattered here and there. In the right ventricle a clot of blood was seen united to it by a false membrane, the upper part loose and the lower firmly adhering, prolonged into the pulmonary artery, the auriculo-ventricular opening was thickened and opaque. Left ventricle hypertrophied, cavity very small, lining membrane opaque, mitral valves also thickened, and a piece of false membrane coating it. The pericardium in an inflamed state. Lining membrane of the aorta puckered up, œtheromatous depositions seen surrounded by a blush of inflammation ; the root of the left subclavian artery is blistered as it were with elevated marks or patches.

CHEST FILLED BY RUPTURE OF ANEURISMAL OR ULCERATED ARTERY. No

(*By John Murray, Esq. M. D. Assist. Surgeon, H. Arty, Muttra.*)

Michael Ryan, Gunner 2d T. 3d Brigade Horse Artillery, an Irishman, æt. 28, 5 feet 8 inches in height, 10 years in India, strong constitution, of regular habits, has generally enjoyed good health, was admitted on the 6th September 1845, complaining of frequent brown watery purging, of two days' standing, with pain in the region of the heart of four days standing, impulse of heart feeble, some blood and slime in the stools, no tormina nor tenesmus, p. 72, feeble, tongue clean, skin cool, there was a faint bruit de soufflet, on admission. The pain in the region of the heart yielded to local depletion and blisters, but it returned periodically, as well as the miasmatic dysentery, under which he suffered on admission, which was relieved by mercurials and quinine. In the end of September he only suffered from pain in the side and shoulder, but the periodical purging returned on the 3rd of October, with troublesome vomiting, on the 8th October when he was eating his breakfast, he vomited, fell forwards, and in three minutes ceased breathing.

Autopsy 10 *hours after death.*

Head.—Slight serous effusion in the ventricles. Blood liquid.

Thorax.—Left side of thorax filled with a large recent coagulum of blood with serum. This had proceeded from an aneurism situated below the arch of the aorta, about 1½ inches in diameter, the spine was partly absorbed at this point, and the left lung was attached to the aneurism. Lung otherwise healthy, slight serous effusion in the pericardium, heart natural.

Abdomen.—Stomach thickened, vascular, liver small, pale. Other viscera natural.

REMARKS.—The symptoms of miasmatic dysentery required treatment by quinine; contra indicated by the disease in the aorta; but I did not suspect this complication. The pain in the region of the heart and left shoulder, are often found depending on the formation of a coagulum in the heart, a morbid appearance often met with in this form of miasmatic disease*; and as the pain was felt only two days before the miasmatic symptoms, I considered them part of the same disease.

The aneurism has been formed by the rupture of the inner coats of the aorta, extending for an inch, in a straight line, longitudinally, it was circumscribed by the cellular coat and the surrounding structures, there was absorption of the vertebræ, where pressed upon by the aneurism. The disease appears to have commenced on the 2nd September, and it proved fatal on the 8th October, I have forwarded the diseased portion of the aorta. *See No.* 1384.

EMPHYSEMA. OBSERVATION BY A. WEBB, ESQ.

Examined at Howrah, 20 *hours after death*, *Aug.* 6*th* 1842, (*the body of a man found dead.*) *See No.* 1511

Account—A man working in a dry dock fell down dead, he was a native carpenter, an European sailor is accused of assaulting and killing him by throwing a stone

Autopsy.—Externally, great fulness of the vessels of the neck, with distended eyes, and temples, skin much darker colored than natural from venous congestion; supposed to have died of rupture of spleen.

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* I consider this a very important pathological fact; first noticed so far as I know in this place.—In the dissecting rooms of the Medical College the coincidence of endocarditis, upon which the clot depends, with disentery is often seen—see No. 565 p. 171.

Abdomen—Carefully searched showed nothing unusual but old adhesions in neighbourhood of spleen, and of intestines to abdominal parietes.

Chest—Larynx, slightly œdematous, glottis somewhat reddish, trachea redder and redder as it descended from larynx, till at last it became of an unifrom red, or brick color, and filled, as well as minute ramifications of bronchia, with sputa, watery or serous, somewhat frothy, with, here and there, streaks of yellowish mucus.—*Lungs* blackish, in parts œdematous, the edges especially where resting on the diaphragm emphysematous—cells broken into one another; externally blistered up, with air underneath.

Head.—Shewed general and excessive venous congestion.

OPINION AT INQUEST.

Died asphyxied—whether suffocated from asthma, carbonic-acid gas—or the gunja in smoking, uncertain; but not a mark externally nor a sign internally to shew injury from external violence.

Deduction, that the five or six respectable Hindoo men, who came to swear away the life of an European, were just so many perjured rascals.

PERTUSSIS, PULMONIC EMPHYSEMA, VOLVULUS, DEATH. see Nos. 1005, 1506

BY ALLAN WEBB ESQ.

Case of Miss M. aged 2 years and 2 months. This child although very delicate in appearance, exhibited no marked deviation from health until about 15th February (1833) she shewed slight symptoms of fever attended by cough, for which her mother gave her a little aperient medicine (three or four grains of calomel.) The cough however continued, and I was called upon to attend her.

On examination the general impression I had as to the delicacy of the child's constitution, was more fully confirmed. The head rather high and large, hair light colored and weak, eyes blue with heavy expression, unless when excited, neck narrow, chest contracted in front, bulging out at the back which appeared to be very weak, for a child of that age, for when carried she rarely supported her own weight, but drooped her head over the shoulders of the attendant. The abdomen large and prominent, extremities small.

The general management of this child, prompted by the kindest feelings of maternal tenderness, might perhaps in some instances have defeated its own object. Its cot was so situated as to preclude the possibility of a current of air. The child whilst asleep was well covered with woollen bed-clothes, in addition to musquito curtains, and every *morning* immersed in a warm bath. The diet generous, wine and meat being superadded to the ordinary diet of children. Observing the child's skin to be covered with the eruption, called prickly heat, whilst its eyes were red and *ferretty,* that in a morning, this was more apparent, and the child more irritable and fretful, than even at night, and its cough more troublesome, the following indications appeared to me most desirable to be effected.

To moderate the irritation of skin, which being prolonged to the mucous surface of air passages might keep up cough;—by lighter clothing at night, free exposure to fresh air, warm bath at night only, a mixture, containing half a grain of Ipecacuanha in each dose, to be taken three times daily. Rhubarb and magnesia to regulate the bowels. Leave off meat and wine.

21st. February

Persisting in this plan for about a week, the irritation of skin in some measure subsided, but the cough was more severe, and soon followed by the characteristic symptom of whooping cough, the prolonged "whoop." Still this was not so severe as to induce me to adopt any very active treatment, she went on for another week, and I merely increased the dose of Ipecacuanha to a grain, which was sufficient to excite nausea and occasionally even vomiting. Two grains of calomel were sometimes given at night, to clear the bowels. Following up this plan, and frequently examining with the stethoscope the state of the air passages, and satisfying myself that there was no dangerous accumulation of mucus, nor inflammation of lungs ; and watching whatever indications might lead to a suspicion of determination to the head, was all that was done for another week. Still the cough and whooping continued. The child did not bear up well under the disease, drooped its head more, took little notice of other children. Its cough at night, was more harsh and prolonged.

28th.
℞. Pulv, Ipecac gr. xvi
Ant. Tart. gr. i.
Sach. Purificat
Pulv. Acac, gum. a ʒii
Potass Nitrat ℈ii.
Aquæ. Puræ. ℥iv. ♏.
Capt. coch i. med. 4 tis horis.
Emp. Cal. inter claviculas.

Was anxious to shorten disease. This mixture seemed to have the effect of moderating the cough, sometimes the doses were repeated so frequently as to induce vomiting, at other times not more than one or two doses were given in twenty-four hours, according as the air passages were free or loaded. Two doses given soon before going to bed would procure a total cessation from cough during the night, and consequently sleep.

March 7th.

On the 8th, 9th and 10th of March improving ; on 11th and 12th, little or no cough, perhaps not more than two or three fits in the day, but little appetite.

March 13th was delighted to see the improved appearance of the little sufferer, skin natural temperature, eyes intelligent, even *animated, held up its head* and sat erect. Was surprised to hear in evening the child would take no food, and next morning that it had considerable fever all night.

14th.
℞ Hydrarg. Sub. gr. ij.
Pulv Antim. gr. ij.
Pulv. Acac. gr. iij. M.
ft. Pulv. ter die *sumend.*

Skin hot, child restless, great heat of abdomen, no pain on pressure evinced, no cough, absolute repugnance to food, pulse 170. A similar powder taken last night had merely brought away some dark colored, nearly black evacuation, very small in quantity, and the same kind of evacuation, apparently consisting merely of mucus tinged with black bile, was all that came away after taking two powders this day.

12 P. M. Called to the child, being told it was dying, found it in the highest state of fever, the abdomen intensely hot, and the head much above natural temperature, lying on back, legs partly drawn up. Respiration rapid, pulse 176, air passages free, no mucous rattle. To sponge head, take one powder now, another at two o'clock.

14 A. M. No improvement, put her in warm bath for ten minutes. This equalized the heat more, she dozed in bath, and when out, fell asleep.

15th. Seemed better in the day, drank a little rice congee and sago in middle of day. Repeat the powders.

6. P. M. Much worse, great determination to the head, oppressed respiration, cold extremities, relieved by warm bath, for ten minutes;—wine and water, stimulant plaster to neck.

16th.
V.S. ad.℥iv. from ext. jugular vein, warmbath

Child looked pale, features sunk, animation gone, moaned incessantly, convulsions came on about noon, vessels of head distended, respiration oppressed by the rapid secretion of tenacious mucus. Introducing finger in fauces to make it vomit, this often repeated, the color of the lips as often returned, respiration became less difficult, quantities of mucus being got up, but again the convulsions recurred. She struggled her last at 12 o'clock.

Examination same day.

Head—The vessels of the brain were loaded with blood, and numerous bloody points were seen on *slicing* it. The membranes presented nothing unusual ; there was no *thickening* nor opacity of the *arachnoid*, the pia-mater was rather *injected* than otherwise, a little serum was seen between them towards the base of brain. On opening lateral ventricles, they did not together contain more than three drams of fluid, the choroid plexuses were in no degree blanched. There was a little fluid effused at base of the brain and the commencement of the spinal marrow.

Chest—The lungs appeared healthy on their external surface, whitish spots about the edges indicate emphysema, no water in chest, no adhesions. The whole mucous membrane of *air passages* from larynx to the minute ramifications was paler even than natural, a little frothy sputa, not thick nor tenacious, was seen in the trachea and in some of the bronchia. On slicing lungs, in no part, was there oozing of pus. Heart quite healthy right side full, the other empty of blood.

Abdomen—In its general appearance was healthy, the stomach distended with air, the liver rather larger than natural, and pale, intestines looked quite healthy, beginning at the duodenum and proceeding on, I found about the end of the jejunum an intussusception or volvulus clearly marked, with the intestine above distended ; whilst below there was nothing for some distance in the bowels. The bowels below this point contained nothing but that black colored kind of mucus the child had evacuated. The examination of the mesenteric glands was not made, the mucous surface wherever examined was quite healthy.

Deduction.—The child had recovered from hooping cough, but died of the volvulus and convulsions.

Remarks. This is the only fatal case which I have met with in hooping cough in INDIA. The disease has twice gone through the children of the Government orphan-school during the last four years, and once through LaMartiniere Institution.

BRONCHIAL TUBERCULOSIS. No. 1239

(By Dr. H. Clarke, Surgeon 3rd Battalion, Artillery.)

8th.
℞ Pulv.Jalap. Co. ʒss.
Mist.Sal. Ant.℥iss 2hor
Friction. Ung. Ant. Tart. ad Stern.

Gunner Thomas Harcus, aged 22 years, 1st Company, 3d Battalion artillery, admitted 7th September, 1845. with pulmonic affection, attended with cough, skin hot, pulse accelerated, bowels freely moved.

15th.
Rep. Omnia.
Mist. Purg. ℥iij. c.m.s.

Dullness over chest throughout, on percussion (probably long standing adhesion and perhaps partial hepatization of lungs.) Has had cold and cough, since arrival in India, but no unhealthy expectoration, health has declined since leaving the Orkneys.

16th.
Rep. Sol. Antim.
Ung. Ant. Tart.

Cough not troublesome and slept well, sputa small in quantity and slightly purulent.

17th
Cont. Omnia.
To inhale the vapor of warm water thrice a day for 10 minutes each time.

Remains much the same, does not regain strength. There is obviously disease of long standing in the lungs. Cough less, but sputa is of a muco-purulent character, and partly sinks to the bottom of the fluid contained in vessel, bowels in good order, and sleeps pretty well, and no pyrexia, but skin gets warm.

2 P. M. Cough less troublesome, and sputa small in quantity but of a more decidedly purulent character, less mucus.

21st.
Cont. Inhalation

Thinks himself a little better, feels relief from inhalation of the vapour of water, no sputa to-day.

29th.

Improved, pulse fuller and freer, still feels very weak but is decidedly better, no cough, respires much more freely since application of blister (yesterday.)

7th. Oct.
Admin Enema Anodyn
℞ Mist Cretæ ℥viij.
Tinct. Opii. ʒi.
——Kino ʒij. A table spoonful every hour.

Coughs but little, and stools feculent, but too frequent. Looseness of bowels, moderated by the compound chalk mixture.

13th. Cont.
cum Tinct. Hyosciam
To be sponged with solution of Nitric Acid

The same, copious perspiration ; bowels in pretty good order, no cough, and pulse soft, equable and with volume.

14th. 5-30

In a state of syncope, on visiting him at sun-rise apparently dying, but was revived by stimulants, pulse steady, and as regular as for some time past, but respiratory organs affected chiefly. Pupils contractile, but dilated. On taking stimulants recovered for a few seconds, and relapsed into the same alarming state. The heart is probably involved in the general diseased action which has for some months past existed in the lungs and tissues. At 6, respiration laborious ; convulsions, and pulse at wrist became rapidly more feeble. At 7, was in the same insensible state. Expired at half past seven o'clock ante merid.

Post Mortem Examination.

On elevating the sternum, the entire surface of lungs presented one general, disorganized mass, studded with abscesses of various sizes. Each lung containing a cavity of large extent, superiorly, with adhesions of extraordinary firmness. The left lung was torn from its attachments with the greatest difficulty. With exception of a very small portion of crepitating surface near the anterior margin of the lung, the whole organ was rendered utterly unfit for the purposes of respiration by bronchial tuberculosis.

Remarks.—This young man was by trade a shoe-maker, a native of the Orkneys. After enlistment, he absconded, and suffered imprisonment on being captured ; and whilst undergoing this punishment, the pulmonary complaint is said to have commenced. When he arrived in India about a year ago, he was in delicate health, and has subsequently been several times in hospital.

DIFFUSED ABSCESS IN LUNGS. See No. 939

(*By Dr. H. Clark, Surgeon 3d Battalion Artillery.*)

Gunner George Walker, aged 30 years, 1st Company 3rd Battalion Artillery, admitted 17th August 1845 into Hospital with pulmonic affection and debility, says he was exposed to the rains while on duty.

℞ Ol. Ricini ℥i. S. S. Vini. Ant. ♏. xxx. Mist. Camph. ℥j. ter in dies	Has cough, copious expectoration, sputa muco-purulent.
18th. Ungt. Ant Tart. appli. pector bis die.	Hemoptysis, apparent last evening, a few drops only of blood with the sputa now. Is now quite free from pyrexia.
19th. Cont. Omnia.	Sputa now the same. The dullness on percussion is confined to left breast on 1st, 2d and 3d ribs.
27th. ℞ Haust. Salin. Ant. ℥i. ter in die.	The same. A full crop of eruption on chest, sleeps well, tongue rather white, and pulse good, sputa rather less.
29th. Cont. Omnia.	Continues in the same general state with no substantial improvement. The abscess in left lung being evidently of considerable size, slept well, feels refreshed.
September 10th. Rept. Omnia.	Bowels much disturbed, motions thin, slept well, cough less.
13th. Mist Cretæ ℥i. Tinct. Hyos xxx. ♏	Coughed but little and complains only of weakness. Is emaciated and pulse is small and accelerated, bowels in good order.
14th. Inf. Chyretta ℥ij. Tinct. Calumb. ʒj. ter in die.	A restless night, and very exhausting perspiration, sputa the same, loses strength, and has an emaciated appearance, bowels moved twice, had a rigor last evening.
22d. Vesp. Cont. Vini Antim. Tinct. Hyosciam h. s. s.	Bowels still disturbed, perspires very copiously is exhausted, expectoration considerable, and of a more decided purulent character.
13th October. Mist. Cretæ Comp. p. r. n. Acid nitr. dilut to be used during. profuse perspiration.	A very disturbed night from incessant coughing, sputa increased in quantity, and of a purulent character, strength declining fast, great emaciation, bowels moved several times.
17th. Haust. Anod. p. r. n.	Debility increasing, sputa during the day very copious and purulent. At 2 p. m. of the 18th expired.

Post Mortem Examination

Right lung, crepitant, and with the exception of a few tubercular points healthy; the left firmly adherent to the diaphragm, *and contained in the anterior and superior portion an extensive abscess,* traversed by the pulmonic vessels without any natural attempt at limitation.* The bronchia bore marks of long standing inflammation. *Heart* normal. *Pericardium* contained about ℥xij. of transparent yellow serum.

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* This case and the specimen well illustrate the softening disorganizing character of fevers in the rainy season of Bengal.

Remarks.—Was for some years in Canada with H. M. 71st Regiment and subsequently a labourer in Scotland for 5 years previous to enlistment in the Bengal Artillery.

TUBERCULAR DEPSOSITS IN LUNGS, HEMOPTYSIS. No. 996

(By Chunder Coomar Moitry, Clinical Clerk Med. Col. Cal.)

Muttyolla, aged 40, a Mahomedan native of Calcutta, of a tolerably robust make of body, of regular habits, admitted with the following symptoms of pulmonary affection. Ejection of blood from the mouth, generally coming on after a fit of coughing, constant cough, attended with expectoration tinged with blood, oppression and fulness about the chest, feverish heat of skin, pulse sharp and frequent, bowels regular, tongue furred, appetite little affected, sleep disturbed. With regard to the other functions of the body they are unaffected. Says, that in the night previous to his admission he ejected two seers of blood which came on after a severe fit of coughing. With regard to the previous state of his health and other circumstances connected with the origin of the disease, the patient states that he had no other complaint except this slight cough standing for one year, and that he had not been subject to any habitual hemorrhage. Upon further enquiry it is found that there is a small blind fistula in ano, discharging purulent matter, consequent upon an abscess. A crepitant sound was distinctly audible by the stethoscope applied in the lower and lateral parts of the right lung, evidently dependent upon engorgement. With regard to the other lung, it appeared healthy.

From these local and physical signs, it appears clearly evident that the seat of the disease is in the lungs.

℞ Antim. Tart. gr. ii.
Tinct. Digitalis ʒi.
Tinct. Opii. ʒi.
Mistura Camp. ℥viii.

Of which an ounce to be given every three hours; from the exhibition of the above formula the patient derived a good deal of relief on the next day.

7th.
℞ Vin. Ipecac. ♏viii.
Tinct. Digitalis ♏viii
Tinct. Opii. ♏.v
Acid.Sulp.Arom. ♏viii.
Mist. Camp. ℥i. ter die.

The amount of the discharge being very little, it was in intimate mixture with the expectoration; there was still a good deal of feverish heat of the skin, oppression about the chest little relieved.

8th. A. M.
Continue medicine and apply blister over chest.

Derived a considerable degree of relief from the above medicines. There has been very little discharge since last night, heat of the skin diminished.

9th. Has discharged a small quantity of blood, mixed with mucus, and in all other respects same as yesterday. At 4 P. M. a large quantity of blood ejected after a severe fit of coughing. The character of the discharge as regarding its colour, being of a deep arterial hue. From this time, the character of the pulse began to change, the characteristic sharpness merged into weakness.

10th. The patient was a good deal worse, passed a considerable quantity of blood amounting to nearly half a seer. It presented now and then masses of coagula. The oppression at the chest much increased, pulse small weak and frequent, cough much greater, attended at each time with bloody discharge, pain felt at the epigastrium, sleep disturbed, at 5 in the morning considerable degree of hemorrhage ensued, and the man died from the effects of it.

Autopsy.

Chest—The lungs in their external aspect, presented no distinct traces of disease except a slight puckering and firmness of consistence. There were tolerably large and firm adhesions with the pleura in the right side. These appearances were entirely confined to the right side. As to the left it appeared tolerably healthy. With regard to the internal lesions, the lower lobe of the right lung was completely engorged, and here and there filled with tubercular matter. The middle lobe presented in the centre a distinct ulcer which implicated an artery, that seemed to communicate with one of the bronchi ; masses of tubercular matter were also found in this lobe. In the upper lobe a distinct cavity, bounded by membranous walls was found, it also presented tubercles. In fact the whole of the right lung was one complete mass of disease, while the left lung enjoyed perfect immunity from it.

Abdomen—The stomach contained a large quantity of fluid blood. It was much diminished in size, the intestinal canal was flabby and pale. From the correspondence of these appearances with the living symptoms, the disease in the lungs is distinctly proved.

PLEURO PNEUMONIA PERICARDITIS, ATROPHY OF HEART. MESENTERIC DISEASE,—DYSENTERY.

(*By G. G. Brown, Esq. Assistant Surgeon, Artillery.*)

1 P. M.
Appl. Hirud. xviij.p.d.
Ipecac. Pulv. gr. vj.
Ext. Gentian gr. iij.
M. Statim

Gunner Charles Stewart, aged 23, 3rd company, 1st Battalion Artillery, admitted into Hospital, December 1st, 1833. Having arrived this morning with a draft from Cawnpore, states that he has travelled in a dooly during the whole march, but has been labouring under dysentery for the last four months, while on the river. Has the appearance of considerable emaciation, abdomen is much distended, complains of frequent griping calls to stool, respiration laborious, pulse ninety-four, tongue red and rough, skin hot and dry, complains of fixed pain over the arch of the colon, countenance sallow, says he has frequent œdematous swellings of feet during the night.

2nd.
Rept. Pil. ter in die.

Says he feels somewhat easier than last night, five or six stools of white curdy appearance, tongue furred, skin cool, pulse frequent.

P. M.
Rep. Pil. ut heri et adde
Ext. Hyosciam. gr. iv. h. ss. et habt.
Ol. Ricini ℥i. cras mane

Complains of nausea fixed pain about the scrob. cord : five copious motions of the same nature as before ; pulse eighty-nine, skin dry, distension of abdomen less but still considerable.

3rd. Ft. V. S. ad ℥x. stat. Emp. Lyttæ later. dext. ℞. Pil. Hydr. gr. iv. Pil. Scillæ gr. v. Opii. gr. i. ♏. ter die.	Complains of fixed pain in the left side of the thorax, respiration laborious, and attended with pain; several copious white-colored stools, pulse more full, 106; secretion of urine copious, skin very hot and dry.
P. M. Rept. Hirud. xx. ℞. Calomel. Pulv. Ipecac. a a. gr. v. Pulv. Digital. gr. ij. ♏ stat et rept. H. S. Hab. solut. supertart. Potass. pro pot.	Continues to complain of difficulty in breathing, but there is some abatement of the pain in left side of thorax, pulse small, 120, sharp; abdomen considerably distended; two copious motions of more natural appearance than in the morning, tongue deep red and dry, complains of thirst.
4th. Rept. pilul. ter die ut antea et solut 2 P. M. Habt. Ol. Ricini ʒvi. statim.	Breathing much relieved, pulse 96, smaller, less sharp than yesterday; three stools more feculent and of dark colour, tongue cleaner but rough and dry to the feel, abdomen less distended, skin less hot than yesterday, peculiarly dry and hard.
5th. ℞. Pil. Hydr. Pulv. Ipecac. a. a gr. iv. Ext. Gentian. gr. iij. ♏. ft. pilul. ij ter die sumend.	Skin more cool than yesterday, tongue dry and of same rough feel. Breathes less laboriously and without pain, abdomen less distended and softer, pulse 92, weak, urine less copious than the previous day, has had two motions of whitish appearance and liquid.
P. M. Cont. ut heri et adde Quinin. Sulph. gr. i. Sinap. abd. app. ℞. Spt. Ether. Nitr. ʒss Carbon. Sodæ gr. vi. Mist. Camph. ʒi. ♏ ter. hor. sum.	Skin hotter than in the morning, five greenish watery stools, mixed with feculent matter, pulse 92.—Abdomen softer, and less distended, much appearance of emaciation and debility, suffered a good deal from cough during the day, and occasional difficulty of respiration.
6th. Cont. Med. ut heri Mist. Mucilag. ℥i. Tinct. Opii. Camph. ʒss ♏. 2 hor. s. App. Sinap thoraci.	Slept a little during the night, at present complains of nausea, two motions more feculent and natural than before, frequent cough and expectoration, debility seems to increase, voided a considerable quantity of urine during the night.
P. M. Cont. Med. ut heri cataplasm.	Return of difficulty of breathing about one o'clock which was relieved by the application of the mustard poultice, skin about the natural heat, two scanty but tolerably natural motions, pulse weak, 74.
7th. Cont. Quinin. et Mist. Camph. ut heri.	Slept several hours during the night, says he is free from all pain, pulse ninety-six, weak; one scanty and tolerably natural stool; has voided about a pint of urine during the night, seems much exhausted.
7th. P. M. Cont. Medicine. Apply Hot Bottles to the feet. Habt. haust Anodyn. statim.	Has been easy during the day, but during the last hour has become restless, mutters occasionally to himself, pulse very weak, extremities cold, one stool since last visit.
11 A. M.	Died.

Examination, 9 hours after death

External appearance of the body was that of great emaciation. On opening the thorax there were many adhesions apparently of old standing in the right side. The lung was of a pale colour in the superior portion, and of a deep red in the inferior, on the left side many recent adhesions existed between the pleuræ and parietes, considerable effusion had taken place in the left cavity. The substance of the lung was indurated, many of the bronchial canals were filled with purulent matter. The pericardium contained a large quantity of serum. The heart was flabby, walls uncommonly thin (atrophied) but no disease of structure was apparent. The omentum exhibited proof of chronic inflammation, the mesenteric glands were indurated and enlarged. The liver pale and very large, substance peculiarly hard ; a rasping sound was communicated to the knife on cutting through it. The spleen was small and flabby, the pancreas and kidneys natural. The stomach was much distended with flatus, the mucous coat was tinged in a few places with a light pink colour, there were several contractions in the course of the colon, which last on being opened exhibited a thickening of the coats. The portion of the intestine which forms the great arch displaying extensive ulceration of the mucous coat. The caput cœcum coli was much distended and loaded with feculent matter. The whole course of the small intestines presented signs of disease of long standing, the muscular coat was covered with numerous patches of a dark purple colour, there were numerous contractions and thickenings of the coats. The mucous membranes were of deep scarlet and presented numerous ulcerations, this was especially the case in the rectum. The head was not examined.

PNEUMONIA, BRONCHITIS, HYDROPS PERICARDII, HYDRO-THORAX.

W. A. Green, Esq. of Howrah. See No.

A. B. age 25, lymphatic appearance as to temperament. Admitted into Howrah Seamen's Hospital on the 30th July 1846.

History of case previously to admission. Has felt weak and loss of appetite and has had sleepless nights for several weeks before admission, found it difficult to ascend a long flight of steps to the top of a sugar house. He has been in the Sundarbuns about six weeks ago, where he suffered from fever for a week. Had previously to going to the Sundarbuns undergone great fatigue and privation (had *walked* all the way from Madras.) Says he has been always. healthy, his mother and brother both consumptive. Quinine was prescribed for these symptoms, he continued to take it for several weeks before admission.

1st. August
Solutio Magnes. Sulph, c̄ Antim. Potass tart.
Even. Vin. Ipecac ; Tinct : Camp . Com a M. xx.

Symptoms on admisson, Pain on coughing and breathing, referred to below the clavicle on the right side, this pain he says he has suffered from, for the last 3 weeks, but has still kept to his work of mounting to the top of the sugar house, &c. Small weak pulse, clean tongue, scanty glairy expectoration, want of sleep. *Auscultation* (hurried) gave ronchus gravis at seat of pain, tumultuous action of heart. *Diagnosis* (*early.*) Bronchitis, morbus cordis. A splashing noise heard, early in the investigation of the disease, over the region of the heart, near the end of the sternum.

2nd. Hirud xij.

3rd.
Rep. Med. Ipecac.
Sinapism. pector. *Night*
Emplastr. lyttæ lateri sinist. Haust. ether et. Opii.

Has experienced great difficulty of breathing in the night, obliging him to sit up, livid features of face, but little cough, rapid small pulse. *Auscultation, mediate, immediate.* Sound of heart loud, extensive, heard under left arm, and under xiphoid cartilage; attended with a rough, somewhat rasping sound, heard much to the left of the arm, beat of heart of little strength, communicated either to the stethescope or the hand externally, respiratory murmurs at the side of chest, in front, clearly heard.

4th.
Pulv. Jalap. co. ʒi
Rep. Med. Ipecac 4. tis hor.

He has had repeated attacks, of a few minutes duration, of difficult breathing during the night, now breathes without difficulty, although to the eye the chest is heaving ; the carotids of neck beating conspicuously, he coughs with expectoration, and has no fever, quick sharp pulse, sluggish bowels, strangury, is recumbent. *Auscultation.* Ronchus gravis, 'râle crépitant,' behind on right side between scapulæ, loud resonance of the voice at that spot, an occasional mucous gurgle heard there ; hoarse murmur above, behind, on right side.

5th.
Haust. Purgans
Rep. Med. Ipecac.

Awakes from his sleep at night with difficult breathing, and out of frightful dreams, the same violent and evident action of carotids, the subject cachectic, his strength gradually failing, and therefore intolerant of active measures. *Evening*, has vomited a good deal.

6th.
Omit. Med. omn. disinclined to take medicine after the violent vomiting.

His breathing is easy and he slept ; no cough. *Auscultation*, the sound of the heart between the sternum and left breast, and on the left of the breast, and below the broast, has a ringing metallic sound.

7th.
Acid. Sulph. dil. ♏. xij ter die ex aqua.

Sense of heat and uneasiness after food.

8th.
Rep. med. acid.

Paroxysms of short breathing with palpitation severe in night, increased impulse of heart. *Diagnosis dilatation of ventricles, hydrops pericardii.*

9th. *Even.*
Mist. Diuretic. c. Tinct. digital. nitrat. potass. bitart. acet. scillæ.

Vomiting, livid puffy features, but little cough, no sputa, tender left hypochondrium (attributed to spleen disease) otherwise the same. *Auscultation*, distinct 'râle crépitant,' heard behind, low down, on both sides.

10th.
Emplast. lyttæ hypo.
Pil. Hydrarg. gr. iij.
Extr. Hyos. gr. iij.
Extr. Gent. gr. ij. bis die.

Vomiting, three stools, paroxysmal dyspnœa, epigastrium tender and feels hard.

11th.
Haust. Potass. Bitart. pro potu.
Even. Haust. effervs.

Great prostration œdematous face (not feet), glairy mucous expectoration, coughs a little, profusely perspiring skin, hurried breathing, vomiting.

12th *Morn.* (early)
Tinct. Opii. ♏. 40.
Haust. effervescent. e Tinct. Zingib.
A little wine was given

Cough increased, no sleep in night, sitting up at times from distress in breathing, rapid pulse, wet skin, acid eructation, bowels act ; the other symptoms as before. *Auscultation.* Increased impulse of heart, with loud ringing noise, which seems to attend upon the systole. Œdema of face very much increased, slight stupor, tumultuous action of heart, sound smothered, struggling, lies flat on his back. 13th Died early this morning.

Appearances 12 hours after death.

A dark purple discoloration observed of the integument of the face and upper half of the body, great œdema of the face.

Head not opened. *Chest*—Hydrothorax, right side nearly two pints of serum, left side nearly one pint. *Heart* (forwarded to the museum) much enlarged, left ventricle dilated, from three to four ounces of serum within pericardium, no coagula found in any of the cavities, upon the first incision a quantity of dark liquid blood escaped, and emptied the organ. *Lung*, throughout, upon incision, pouring out copiously, a thick, reddish frothy mucus, from the divided bronchial tubes, the calibre of which appeared greater than usual, their mucous membrane of a dark dusky red color, that of the large bronchi deeply red, and covered with thick flaky layers of mucus. *Left* lung inferiorly and behind dense in structure and somewhat consolidated. *Right side* color of divided lung dark red, from above downwards, before and behind, the bronchitis very marked.

Abdomen. Ascites to a small extent. Stomach, a crimson velvet-like injected state of the mucous membrane of the great curve, the membrane throughout highly injected and covered with an adhesive flaky mucus, the mucus stained with black points and streaky. Spleen heavy, its texture consolidated, somewhat brittle, its capsule adherent by membranous bands to all the neighbouring parts ; kidneys firmer than usual in structure ; liver and bowels, healthy.

Observation.—I looked upon this disease as a case of dropsy, occurring in a cachectic subject, enlargement and dilatation of the cavities of the heart being an important part of the diseased condition ; the post mortem appearances about the different valves, (saving the cartilaginous margins) and lining of the aorta, I looked upon as resulting from a state of congestion, impeded circulation and transudation. The pale brown yellowish color of the incised muscle of the heart, instead of the usual dark red color, indicated atony and cachexia.

HŒMOPTYSIS FROM AORTIC ANEURISM. No. 1489.

Abridged report by Tameez Khan, Clin. Clerk.

Admitted into the Hospital J. Turnbull, æt. 30, a tolerably athletic, European Sailor, with the following symptoms of about three weeks duration :—

January 26th 1847.
Cupping glasses to the back.
Balneum Calidum.

Complains of extreme pain round his chest, the pain being severe felt as if shooting from left dorsal region towards the same side, and crossing over the anterior part of the chest. The pains often

Hydr. Subm. gr. v.
P. Doveri. gr. x. h. s.
℞ Ol. Ricini.℥i. mane

extending down in the loins. Owing to the severity of the pains the patient can scarcely breathe at all, the respiration being shallow and rather laborious and hurried, the chest looks to be fixed and unmoveable. Patient does not complain of any cough, his skin is not hot, pulse steady and unaffected, tongue whitish and dry, does not complain of any headache, nor is he aware of having had any fever since the onset of this complaint, bowels rather costive. The nature of the pain being neither lancinating, nor of any very acute, but one of an exhausting and wearying nature.

The pains, he states to be seated outside the cavity of the chest. They are aggravated considerably at nights, and consequently the patient cannot sleep. The pains neither having commenced at any other place, and metastized ; nor before this had he any rheumatic affections ; but some three or four years back. Patient has got a hoarseness of the voice, which he says has only come on a few days ago.

As regards the history of the case, the following is the only occurrence to which the commencement of the disease can be attributed. States only two days prior to the onset of the complaint he was obliged to work on the ship whilst it was raining very heavily, the vessel was then in the Bay of Bengal ; and after this when the night came on, the patient fell asleep with his clothes wet and unchanged.

27th.
Dose of Castor Oil to-day.

Patient had no stools as yet, has taken the oil just now, the pains continuing much in the same state, had no sleep at all. On ear being applied over the chest, no diseased nor morbid sound could be detected.

About eight ounces of blood was taken by scarification, and with no seeming relief to the patient.

28th.
Venæsectio ad. ℥xij. post hor. duas.
℞ P. Jalap. Co. ʒi.
Aq. Menth. Pip. ℥i.

Patient had only two motions since the last report. The pain is stated to be considerably augmented now, being felt between the ribs and the muscular structure forming the thoracic parietes, the difficulty and shallowness of the breathing continuing owing to the fixedness of the walls of the chest. His skin is rather warm, and the pulse a little sharp, his tongue whitish, furred and dry. In other respects he is continuing much in the same state.

2 P. M.

Patient did not feel any relief from the bleeding, at the time but now states that the pains are a little better, and the breathing somewhat easy. The blood was very slightly buffed, but not cupped.

February 5th 1847.

Doing well, bowels moved twice.

6th.
Cont.

Better, does not complain of any pains, nor any difficulty of breathing, but of weakness and faintishness, bowels open, tongue clean, pulse soft and steady.

9th.

Patient died last night at about 7 P. M. the final scene was preceded by considerable vomiting of florid, red and coagulated blood from the mouth. The patient before death was said to have taken a slight exercise in the College compound, and all on a sudden he felt (so he told his friends) faintish, and sat on a neighbour's bed, where he began to vomit, when the house Surgeon was sent for, all of whose attempts and efforts were fruitless, and the patient died on the spot.

Sectio Cadavaris 24 hours after death.

The body extremely pale and bloodless.

Chest.—An aneurism was seen at the arch of the aorta, which burst, and there was considerable quantity of coagulated blood in the cavity of the chest. The left lung, its superior lobe, was at one point adherent round the aneurismal sac and ulcerated; through this, blood passed into the cells bronchiæ, and trachea, and was thence coughed up. The lungs were somewhat, adherent in other places, otherwise healthy. The cavities of the head and abdomen presented nothing abnormal.

SCROFULA, CHRONIC CATARRH, PHTHISIS. Nos. 549 and 677.

By Allan Webb, Esq.

March 25th. App. Hirud. xxiv. Capiat Calomel. gr. x. Ext. Colocynth. Co. gr. v. in pil. ij. statim, et Pulv. Jalapæ Co. ʒj cras mane Spoon diet.	Private Peter S., was in hospital for cynanche, with some cough, about a month ago; and returns complaining of pain on swallowing, which he refers to the trachea, extending from the top of the sternum, and the least pressure on those parts prevents respiration. Little or no inflammation about the fauces, uvula elongated; coughs much at night and in the morning, with frothy expectoration. Has been living on soojee and milk, in consequence of the difficulty in deglutition. Appetite good, bowels regular. Extensive scrofulous ulceration of the glands of the neck.
April 16th. App. Hirudines xij Lateri, et Empl. Lyttæ laryngi. ℞. Pil. Hydr. gr. iij. Pulv. Ipecac. gr. j. Pulv. Scillæ gr. j. Opii. gr. ss. ft. pil. ter die s. Milk diet.	Coughed much in the night, and had pain in the left side of the breast, with much dyspnœa; felt hot and feverish, pulse frequent, small and soft, pain about the trachea continues, sweats much. Sound of the heart's action heard over both sides of the chest; strong resonance under left clavicle.
19th. Cont. pil. 3tia quâquâ horâ et mistura antimonialis. Spoon diet, soojee and milk.	Throat better than it has been for some time, and the breast is easier, sweated after the bath, but was restless from the cough, expectoration clear and glutinous, pulse frequent and sharp, skin warm, three stools.
April 23. Inf. Menthæ Pip, c̄. Acid. Sulphuric 4tis q. q. h. s. Rice pudding.	Sweats profusely night and day, slept towards morning, cough not very troublesome.
May 6th. Capiat Pulv. Cretæ Co c̄. Opio, ʒss. bis die.	Some diarrhœa in the night, sweats much, no pain.
14th.	Died.

Examination five hours after death

General appearance of body that of extreme emaciation.

Head. Membranes of the brain healthy, some serous effusion in ventricles. *Brain* itself sound. *Chest*—Lungs universally adherent to the pleura costalis on both sides, *Left Lung* completely filled with tubercles. Vomica of a regular form, half filled with broken up tubercular matter, in apex of this lung. Another smaller one existed lower down, slices from every part, except extreme base, sunk when put in water—*Right Lung* not quite so seriously diseased, a small portion near the base being tolerably free from tubercular infiltration. A vomica existed in its apex, not communicating with bronchial tubes, filled with matter. Bronchial tubes pale and filled with sputa. Membrane of trachea pale and softened. Epiglottis partly lost by ulceration, which was spread round about the rima, which was contracted from inflammation. Heart pale, softened.

Abdomen. mesenteric glands enlarged and hardened with tubercular infiltration. Bowels ulcerated in various parts of the ilium, some ulcers large as sixpence, others size of a rupee, with hardened edges and grey dirty base; *Liver* and *Spleen* healthy, some serous infiltration into the mesocolon.

Remarks.—Ulceration of the epiglottis, and also of the mucous glands of the intestines—(See No. 593) with enlarged and tuberculated mesenteric glands (See No. 598) and ulcerated glands in the neck, shew the universality of the disease. See p. 116. NOTE.—Strong resonance almost amounting to pectoriloquy heard in situation of the *open* vomica.

SIMPLE PNEUMONIA. SEE No. 262.

By Allan Webb, Esq.

Wiliam W. œt. 30. Never subject to cough until this attack, which commenced after putting on a wet-shirt six weeks ago,—has drank hard, and had no medical treatment; cough, and pain of chest getting worse and worse all the time. Countenance now is miserably anxious;—face livid;

February 29th. —chest fixed. Respiration abdominal, thirty-four expirations in a minute. '*Son mat*' throughout the whole chest, '*râle crépitant*' heard throughout, expectoration copious, purulent;—cannot speak, nor lie down;—skin constricted;—extremities cold, pulse feeble 126, tongue livid, white in centre, bowels open.

V. S. ad℥x.

Mist. Diaph.

12 P. M. No relief. Catap. Sinap. Pectori.

March 1st. 6 A. M. Dying asphyxied, respiration convulsive, with long intervals. Extremities cold, death rattle, cold sweats, power of deglutition gone.

9 A. M. Dead.

Autopsy.

Head. Not examined.

Chest. Lungs did not collapse, on the admission of air to the cavity of the chest. On slicing them, pus was seen issuing in innumerable globules, from divided bronchial ramifications; lower and back part of both lungs gorged with blood, looked like black currant-jelly ; not crepitous. Upper posterior parts, œdematous, frothy serum flowing freely on slicing them ; lower part of the trachea, and bronchial divisions, completely blocked up, with pure pus. The mucous membrane red and injected ; some of the smaller tubes had the same appearance, nearly all were filled with pus. No tubercles seen in the lung.

Heart.—Healthy, right side gorged with black blood, as well as all the great venous trunks. There was effusion into the pericardium.

Abdomen.—Viscera healthy.

Remarks.—A striking example of uncontrolled pneumonia, plainly apparent by symtoms, " son mat,"—" râle crépitant," livid complexion, and purulent expectoration, well illustrated by appearance after death.

Another Case of Pneumonia and Bronchitis.

An European woman, asthmatical, many years in India. Admitted with urgent dyspnœa, and obliged to be supported upright, countenance anxious veins of neck distended, with deep hollows at the root of the neck on inspiration, face livid, &c., died in a few hours.

Autopsy.—*Lungs* gorged with black blood;—old adhesions to costal pleura. Large bronchial divisions of deep brick red colour ;—examined further on, were pale, filled with pus. Pus oozed out, from innumerable points, on slicing the lung. *Heart* large vessels gorged with black blood, left pulmonary artery dilated to double the natural size.

Query. Did the dilated artery cause the asthmatic symptoms ?

PNEUMONIA CHRONIC, ATROPHY OF HEART. See No. 1404.

By John Murray, Esq. M. D. Asst. Surgeon in charge, 2d Batt. H. A.

6 P. M. ℞. Ol. Ricini ʒi. Aq. menth. pip. ℥i. statm. vespere. Bal. tepid, h. s. Vini Ipecac ʒi. Tinct. opii ʒj. Mist. camph ℥ij ft. haust. h. s.

George Holt, Bombr. 5th Co. 2d Bat. Artillery aged 40 years, admitted 23d Dec. 1844. An Englishman 5 feet 6 inches in height constitution delicate 19 years in India, suffered from pneumonia and dysentery at Kussowley, from which he returned two days since ; is extremely emaciated and low, with harrassing cough, slight expectoration, bowels loose for the last three days. Pulse 108, tongue white, skin cold, clammy, complains of no pain, merely debility.

24th. He remained very quiet during the night and about 6 o'clock this morning called for some water to drink and a short time afterwards was found dead.

Autopsy 4 hours after death.

Body emaciated.

Thorax. The two superior lobes of right lung were solid impervious to air, gray hepatized ; inferior lobe natural, left lung emphysematous externally ; nearly the whole of the central and posterior structure was red, consolidated, and bled freely on being cut. Heart small, flaccid.

Abdomen. Spleen large, friable. Liver natural, other viscera natural.

SIMPLE PHTHISIS, ILLUSTRATING. Nos. 285 and 261.

By Allan Webb, Esq.

December 7th.
V. S. ad ℥vi.
Ext. Hyos. gr. vi.
Pulv. Ipecac. gr. j.
h. s. s.
Ant. Tart. gr. iij.
Tinct. Opii. ʒj.
Mist. Camp. ℥viii.
M. ℥j. ter die s.

Margaret B., aged 28—greatly emaciated, has had cough and night sweats four months. Cannot stand from debility. Respiration 48, with mucous rale. Pectoriloquy heard towards apex of *right lung*. Percussion dull on right side, better on left. Expectoration mucous, purulent. Pulse 128. Bowels regular, appetite good, sleep bad.

8th.
Rept. Pilul.

Slept better, expectoration greenish, has pain in the chest. Pectoriloquy at apex of right lung.

9th.

Much easier, cough less, expectoration copious. Pectoriloquy very distinct. Pulse 110, softer.

13th.
Pt.

Passed a bad night, sputa more frothy, cough more urgent, expectoration difficult. Pulse 100.

15th. and 16th.
Wine.

Sinking rapidly.

Died at 9 A. M. of 17th.

Examination 24 hours after death.

Head. Brain pale, slight serous effusion in the base, and at the ventricles.

Chest. Effusion in left pleura, slight adhesions of *left lung* to pleura, grey hepatization in the upper lobe, tubercles in lower, much approached towards the upper part. But some part of the lower lobe was healthy, and permeable to air. No vomica, some tubercles softened. *Right lung* universally adherent to costal pleura, vomica of irregular shape, size of an orange, in upper lobe;—several smaller ones diffused throughout it. Lower and middle lobes, full of tubercles in various stages, whole lung rapidly sunk in water. *Heart* healthy.

Abdomen. Stomach had hour glass contraction, viscera healthy, omental hernia on left side.

Only remarkable as giving indication of *one vomica* which is found where pectoriloquy was heard.

PHTHISIS PULMONALIS & MESENTERICA. *See No.*

By H. W. Manley, Esq. Assistant Surgeon in Medl. charge 2d Batt. Arty

Patrick Holan, Private, 1st European Regiment, aged 21 years, admitted.

16th .Oct. 1845.
Pil. Hydr. gr. v. h. s.
s. et c̄. m. Pulv. Rhei
Co. ʒss.

Says he feels very weak and has pain across the chest, expectorates thin mucus with difficulty in coughing, skin at present of natural heat and moist, pulse small, tongue white, bowels regular.

18th. *Vesp.*
Pil. Hydr. c̄. Pulv.
Ant. hora. s. sum.

Skin slightly warm, pulse rather frequent. Bowels open five times.

19th. *Vesp.* Liq. Ammon. Acet. c̄. Mist. Camph. ā ā ℥ss. omni hora 2nd Pil. Hydr. c̄. Pulv. Ant. h. s Ol. Ricini. ℥j. mane.	Skin hot and dry—pulse frequent, says he had three stools with little blood and slime—No purging or straining.
Vesp. Rept. Pil.	Frequent stools of greenish color, no straining, skin rather hot.
21st. Cont. Pil. Vesp. merid.	Pulse 108, complains of weakness and thirst, three stools, not seen.
27th. Cont. T., Digit. ♏ xv.	Did not sleep—pulse about 100. Can take a deep inspiration freely, feels easier.
Vesp. T. Opii. gtt. xxx. h. s. s.	Much the same.

Transferred to the 2nd Battn. Artry. Hospital, 31st Oct. 1844. Umballah.

1st. Nov. 1844. Pil. Dysent. 2 in die Pulv. Ant. gr. v. Nocte,	Severe cough with much expectoration. Was purged 8 or 9 times yesterday.
3rd. Hirudines xv. left Hyp. Fotus calid. Pulv. Doveri gr. x. h. s.	Purged constantly during the night, stools quite watery. Complains of severe pain in the left hypochondrium, much thirst, pulse about 100.
4th. Cont. P. Doveri.	Very weak, pulse rapid, no purging, countenance sunk. Profuse diaphousis and same dyspnœa.
5th.	Sinking rapidly, much emaciated, delirious during the night. Died at 1 p. m.

Post Mortem Examination.

Body much emaciated. On opening the thorax and displacing the lungs, a quantity of serum flowed out. The left lung completely hepatized, the right much interspersed with very small tubercles, air cells and minute bronchial tubes filled with frothy mucus, no cavity in either lungs. Abdomen—The peritoneal reflections much diseased and reduced to shreds in which the intestines appeared entangled, mesenteric glands all enlarged and hard, some as large as a pigeons egg, liver healthy.

PHTHISIS, EROSION OF LARYNX, INTERLOBULAR CELLS, ILLUSTRATING Nos. 285, 544 and 677.

By Allan Webb, Esq.

Mark S. Œ. 26. January 22d. Mist. Efferv. Emp. Lyttæ sterno et trach. ap.	Countenance not anxious, lips livid voice husky, nearly gone, cough harsh, expectoration mucous, frothy, tenacious, free, streaked with yellow. Percussion dull at posterior part of chest, particularly on right side; *râle sonore,'* throughout; action of heart natural, appetite good, bowels open.
24th. V. S. ad. ℥xvi. Vin. Ipecac. ʒj. Aquæ ℥j. 4tis. horis.	Dyspnœa increasing, percussion more dull, '*râle crépitant humid,'* heard both sides, lips livid, expression anxious. Pulse frequent.

27th.
V. S. ad. ℥xij.

Dyspnœa again distressing, lips livid, '*râle crépitant*' distinct, skin hot, expectoration mucous, and copious.

30th.
Pulv. Ipecac. gr. v. ter die.

Improved in appearance. Respiration easier. Hoarseness less, '*râle mûqueux*,' where before was heard, '*râle crépitant*,' ; sound like creaking of shoes between third and fourth ribs, left side. Expectoration *thick, yellow*, less in quantity. Pulse 96, full, soft. Bowels open, skin hot.

February 2d.
C. C ad. ℥viii. sterno
Cal. gr. i.
Pulv. Antim. gr. iv.
2ndâ quaquâ horâ s.

Countenance sunk and sallow, complains of pain referred to lower part of trachea; percussion gives dull sound on *left side*. Respiration quick, expectoration streaked with *greenish yellow*, tenacious, adherent; tongue pale, bowels open, skin hot, pulse frequent.

3rd.
Acid. Hydrocyan. gt. vi. ex aquâ ter die.

Percussion more dull throughout whole chest, respiration 28, great depression above sternum on inspiration; Pulse 110, face flushed, anxious; harsh roaring noise heard on applying tube to larynx.

6th.

Better.

11th. Pt.

Much the same, cough less, expectoration greenish pulse 112.

13th.
Spt. Am. Arom. ʒss.
Stat. s.
Sinapism

Called up to him at 4 A. M., sitting up, gasping for breath, lips livid. Pulse intermittent, opened a vein could not get blood.

9. P. M. Skin hot, sits upright, respiration laborious, effected through muscles of shoulder, 40 per minute;—pulse 140, head bedewed with sweat expectorates more, and there is more of general re-action, since taking morphia; slight tinges of blood in expectoration.

15th. Pt.

Sinking whole of day. 16th. Died this morning.

Autopsy.

Head. Slight serous effusion between arachnoid and pia mater, sinuses gorged with black blood.

Chest. Almost universal adhesions between pleuræ on left side, more partial on right, where they formed cells containing serum, which occurred also between the lobes. A vomica half-filled with softened tubercular matter, existed in left lung, communicating with a bronchial tube, walls rugged and not lined with membrane. This (*left*) lung presented a granite appearance without a trace of air cells. Little of the lower portion pervious to air tubercles, though small, being so very numerous. *Right* lung had no vomica, but a small portion, of lower lobe, alone capable of receiving air. *Larynx*, mucous membrane pale, and eroded, ragged about chordæ vocales, that lining trachea and bronchial tubes, pale.

Heart. Healthy. *Abdominal* viscera healthy.

Remarks. Hoarseness, aphonia, harsh cough, explained by state of larynx, and trachea; *son mat*, on percussion, by impervious state of the lung; change in expectoration by vomica, within latter days, communicating with bronchial tube, noise like creaking of shoes, by interlobular cells.

PHTHISIS, ŒDEMA OF LUNGS, ULCERATION OF EPIGLOTTIS, WITH INFLAMMATION AND ULCERATION IN TRACHEAL LINING MEMBRANE.—SEE Nos. 549, 677, 662, ALSO 544. and 243.

By Allan Webb, Esq.

February 29th.

James M., aged 45. Says never had cough till a month ago, when it came on with pain in the chest after exposure to wet and cold.

V. S. ad℥xi.
Pulv. Antimon. gr. v. ter die sum.
Mist. Diaph.

Face anxious, lips livid. Respiration 36, interrupted by frequent hard cough, occasionally terminating in expectoration of frothy colorless mucus, mixed with portions of thicker consistence, and darker color. Respiration chiefly abdominal, chest fixed. Percussion elicits '*son mat*' over all the right side of the chest, where '*râle crépitant*,' is heard, at the upper part. Respiration on left side puerile, no, '*râle crépitant*' there; heart's action natural; pulse 90, full; tongue grey; bowels open.

March 3rd.
Pt.

Better, cough still extremely troublesome, preventing sleep, (seems to proceed from inflammation of Larynx.) Respiration 30, '*râle muqueux*,' heard, where before was, '*râle crépitant*,' pulse 94, expectoration colorless, with thick yellow portions floating in it.

5th.
Haust. Cath.
Pt. in mist. et Pulv.

Better. Cough continues harsh, complains of "some thing catching in his throat" when he swallows, mucous membrane looks inflamed, and there is pain on pressing between the thyroid cartilage and the os-hyoides. Respiration easy, tongue clean. Bowels confined.

9th. Pt.

Slept little;—voice hoarse, croupal;—throat sore, larynx, tonsils, and palatal arches red, and secreting tenacious mucus.

14th.
V. S. ad. xij. (Emp. Lytt.)
Ant. Tart. gr. ij.
Mag. Sulph. ℥i.
Aquæ ℥viii.—℥i.
4tis. horis.

Worse in the night from pain in bowels, and sickness. Bowels tender on pressure; tongue furred, voice husky. Pectoriloquy distinct under right clavicle, resonance of voice strong under left clavicle, '*râle muqueux*' general on left side, pulse small, quick, sputa copious, streaked with pus and yellow mucus, face anxious, lips livid, skin hot, knees drawn up, pulse, after bleeding, 90 and softer.

18th.
Pul. Cal. et Op. ā. gr.j. ter die.

Sinking, no pain.

Dead.

Examination of thoracic organs, after death.

Chest. Lungs did not collapse, the *left* was universally adherent to the costal pleura, whilst the internal state of the right lung prevented collapse.

Left lung. Very uneven externally, owing to subjacent tubercles occurring chiefly in small groups, leaving the intervening tissue pretty sound. No grey infiltration. On slicing it from above downwards, an amazing quantity of yellow serum exuded, without pressure. Little of this lung crepitous. An empty vomica, large as a walnut, was seen in the apex of this lung, not lined however by membrane. Several others, large as hazelnuts were seen around it, full of softened matter. Pulmonary substance about the great vessels, hard as cartilage, some bony deposit seen here. *The right* lung was œdematous also, but not so much so as was the left. A cavity large as an orange, and lined by membrane, occupied the upper lobe, and several pretty strong bands passed across it. Around its base, numerous smaller ones were seen, full of pus, about the size of kidney beans. A larger cavity half empty, existed at the junction of this with the middle lobe, which junction was effaced by adhesion, lung in other respects like the *left*. *The mucous membrane* of the larynx was pale, easily detached, ulceration seen at the base of the epiglottis, granulations set up to repair it. Parts covered by tenacious mucus. Lower down, secretion more tenacious, adherent, streaked with pus, and the membrane became more injected, still lower, pus only was seen, and an ulcer, the size of a rupee with rough edges, covered with pus. Membrane healthy beyond the bifurcation, Bronchial tubes full of muco-serous fluid.

Heart. Pale, softened.

Remarks.—Vomica *not yet lined* in left lung, gave no pectoriloquy. That in right lung *was lined with membrane* and gave pectoriloquy.

PNEUMONIA, BRONCHITIS, INFLAMMATION OF VOMICA IN TUBERCULAR PTHISIS.

See Nos. 261, 262, 779.

By Allan Webb, Esq.

Lucy D., aged 20, European, short stature, dark hair, grey eyes, florid cheeks, fair skin. Had no cough till three months ago, when for that, and pain in the chest, she was bled; took medicine, got better, but never menstruated since.

March 7th. 10 A. M. V. S. ad. ℥xvi. Vin. Ipecac. ʒss. Spt. Ether. Nit. ʒj. Mist. Camph. ℥i. ter die.	Suffered much distress on admission, fainted, vivid hectic flush on the cheeks, lips livid, respiration 64 in the minute ; pulse 160, skin hot, lips parched, countenance dreadfully anxious, *'râle crépitant'* heard over the whole chest, sputa glutinous, adhering to the cup.
12 P. M. V. S. ad. ℥viii. Pil. Aper.	Decidedly relieved, face less livid, respiration 60—pulse 120.
8th. V. S. ad. ℥viii. Pt. in Mist.	Countenance improved, respiration 40, sputa muco purulent, *'râle crépitant'* larger, cavernous respiration, and rattle under the left clavicle, pulse 126, skin perspires freely.
9th. Pt.	No sleep, face flushed, skin hot, moist, respiration 38. pulse 120, *'râle muqueux'* now heard in some places.
10th. Pt. Ung. Ant. Tart. sterno. ap.	No sleep, respiration 58, pulse 112, skin bathed in sweat, tongue clean, bowels open.
11th. V. S. Ad. ℥x.	*' Râle muqueux'* now most general, *' râle crépitant'* still heard, respiration more rapid, skin hot and dry, sputa white, tenacious, frothy, adherent.

℞ Ant. Tart. gr. ¼ Tinct. Digit. ♏. v. Aq. M. Pip. ℥i. ft. Haust. nocte. maneque sum.	Nearly fainted after V. S., distress relieved by copious sweat breaking out.
	Vomited twice from the draught, which aggravated the dyspnœa.
13th. Ol. Ricin. ℥ss. 2ndâ horâ quaq· donec alv. resp.	Much improved, respiration less frequent, spirits better, *rale muqueux* general, skin moist. Bowels now open last three days.
14th. Pt. in Mist.	More fever, bowels open four times in the night, had shivering, skin hot, face flushed, pulse 120, respiration 56, sputa purulent.
21st Wine. Emp. Lyttæ	Face anxious, bathed in perspiration, respiration 54, pulse 100, weak, sputa purulent, great debility.
27th. Pt.	Cheeks tinged with voilet, alæ nasi dilated, expectoration wholly purulent, sweats profusely from the head and shoulders, pulse 120, respiration 34, '*râle muqueux*' general
April 1st. Haust. Ether. Sulph. stat.	Sinking fast, face livid, skin covered with cold clammy sweats, respiration 40, laboured, inspiration convulsive, catching, expiration puffing, pulse intermittent 110. Is exceeding drowsy.
	Died at 2 P. M.

Autopsy.

Body. Much emaciated, no malformation. *Head.* Not examined.

Chest. Lungs did not collapse, their anterior edges grey, uneven, tubercles readily felt. *Left lung* universally attached to pleura. *Right* confined in a part only of its extent. In the apex of the *left* lung was a large vomica size of a closed fist, lined by dense walls, *spotted with vivid red patches.* Lung below not solid; only here and there groups of tubercles were seen;—intervening tissue healthy. Another cavity, the size of a chesnut, in the top of the lower lobe, was filled with softened matter, not communicating with a tube. This lung, below, contained many tubercles in its anterior border, whilst the posterior border, and base, were free from them. Pulmonary tissue pale. Bronchial tubes, when divided oozed out pus. The tracheal lining mucous membrane looked healthy, but so soon as divided into bronchi, that to the right continued pale, that going to *left* lung became red, speedily assuming a villous appearance. On following the ramifications, ten or twelve were seen to enter the vomica, their mucous lining looked like red velvet, smeared with pus, producing " the red patches or spots" before mentioned, nearly all the tubes in this lung, appeared of a deep red colour, in the healthy tissue of the organ ;—while in the *right lung,* they were pale, compared with its deep red bloody appearance. This *right lung* being inflamed, spumous when squeezed, partly carnified, with bloody glutinous matter oozing out when sliced. (see p. 138* *Note.*) It was œdematous posteriorly. Had few tubercles and no tubercular excavation.

Heart. Healthy. *Abdominal* organs sound.

Remarks.—The pneumonia and œdema on the right side. The bronchitis, terminating in secretion of pus on the left side, with a partial inflammation of the mucous lining of the tubercular cavity, superadded upon tubercular lungs, rendered them unfit for respiration; death from asphyxia ensued.

PLEURITIS EFFUSION OF SERUM, ABSORPTION, RECOVERY. See No. 621 p. 20.

By Allan Webb, Esq.

March 20th V. S. ad. ℥viii. Mist. Diaph.	Jane H., æt. 24. Had pain in side, and cough last month, pain increased daily till now, worse on inspiration; has pain also in the head and back. Percussion dull over left side of the chest, where pain is chiefly referred to. Respiration indistinct on left side, indeed scarcely heard, is puerile on the right. Pulse 112. Respiration 34, face flushed, rather livid. Tongue furred on the left side only. Bowels open. Has not been *regular* last three months.
22nd. Blood Buffed. V. S. ad. ℥viii. Pt.	Relieved by V. S. Inspiration more easy. Pulse 112. Respiration 30. Tongue still furred on the left side. *Œgophony* heard in posterior part of the chest, in the left side.
24th. Pt.	Cannot even now draw a full breath without exciting cough. Tongue as before, bowels confined.
25th. V. S. ad. ℥xij. Mist. Anti. Tart.	Return of pain.
27th. Cont. Med.	Can now dilate the chest more freely, without pain, cough less. Percussion elicited a few days ago, '*son mat*' over the whole of the left side, but is now more natural. Respiration is heard at the upper anterior part of the left lung. Right side, as before, gives a healthy sound. *Œgophony* still heard at the lower part of the left back. Tongue clean on the right side, furred on the left, bowels open, appetite good. Pulse 92. *Mixture nauseates.*
29th.	Return of pain and dyspnœa. Emp. Lyttæ lateri.
April 1st. Pt.	Much improved, had a little return of pain, relieved by leeches, can now dilate chest without pain. *Cannot hear Œgophony now,* tongue clean. Bowels open, pulse 92.
5th P. Digitalis Ipecac. et Scillæ ā gr. j. ter die.	Respiration distinctly heard in upper part of left lung. Pulse feeble, irregular 130, when sitting up—(took yesterday digitalis.
19th.	Discharged.

Remarks.—The chest when there was much fluid, gave no sound of œgophony; when less, sound is heard, when no fluid, no sound. What caused the semifurred state of tongue?*

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* CASES of serous effusion in the chest without fibrine are recorded at p. p. 29, 33, 49, 58, 164.

FIBRINOUS DROPSY OF THE PERICARDIUM DROPSY OF CHEST AND ABDOMEN, ABSCESS IN LUNG.

By J. Morice, Esq. M. D. Surgeon 2d European Regt.

Illustrates No. 981, p. 69, and No. 252, 868, p. 31, 48.

Pte. James Dwyer, No. 6 Company, age 26 years, admitted into Hospital.

April 8th. *Vesp.* ℞ Calomel gr. iij. Ext. Hyosciami gr. v. ♏ h. s.	States he has felt much prostrated for the last four days, occasional pain in different parts of chest with fever : has now some pain in upper part of right hypochondriac region on taking a full inspiration. Skin now cool, pulse frequent, soft, bowels confined, is looking pale.
10th. Inf. Cherytæ. bis in die. Pil. Hydrarg. c̄ P. Antimon. h. s.	Feeling better to-day, complains of pain on the right side of chest.
11th. Pulv. Rhœi. Co. ʒiss. Contr. Inf. Chereyttæ	Pain continues, bowels rather slow.
12th. ℞ Mist. Gum. Ammon.	Less pain.
21st. Contr. Pil. Scillæ Co add. Pil. Hyd. gr. i. P. Jalapæ Co. ʒj.	Abdomen larger than natural with an obscure feeling of fluctuation. Face also swollen for some time back. No pain now in chest. No cough.
22d. Mist. Purg. ℥iij. Contr. Pil.	Did not retain the powder. Says he has been unable for some time to retain Jalap.
May 1st. Rep. Mist. Purg. ℥iij. Contr. Pil.	Some difficulty in breathing and cough. Abdomen as before, bowels slow.
22d. *Vesp.* ℞ Potassæ Nit. gr. xii. Mist. Camph ℥i. ♏ h. s.	Does not pass his urine freely.
June 10th. *Vesp.* Appl. Empl. Canth.	Complaining of pain in right side.
12th. *Vesp.* Contr. Pil. Lin. Saponis. Co. p. d.	No pain in side but complains of stiffness and pain in right thigh.
14th. Mist. Gum. Ammon. c T. Camph. Co.	Coughing a good deal of mucous sputa with a little blood since yesterday.
16th. Calomel gr. i. in Pil. Vice Pil. Hyd. Contr. Mist. Ammon. Appl. Empl. Canth.	The right leg became œdematous yesterday and is still so, though in a less degree, complains of pain in right side to-day.
19th. Cont.	Slept very little, breathing a good deal affected, cough continues troublesome, thirst.
20th. Omit. Calomel	Very weak to-day, pulse weak, breathing difficult.

21st.
℞ Tinct. Opii. ♏ xxv.
ex. Aq. Menth Pip.

Did not sleep well, is much the same to-day, very low in spirits.

25th. *Vesp.*
Repr. Haust. Anodyn

Very weak, breathing difficult.

27th.

Died at 5 A. M.

7 A. M. *Post Mortem Examination.*

Intestines distended with flatulence. Three or four pints of serum in abdomen. Liver rather large of a pale greyish colour. Large collection of serum in left pleural cavity. An abscess containing some ounces of pus at the lower part, in front, of the lower lobe, of right lung. This lobe hapatized, and the lobes adherent to each other. Pericardium enormously distended with serum. Surface of heart covered with a thick layer of coagulable lymph, easily broken down, a strong fleshy band, as thick as the little finger, between the apex of heart and pericardium. Left lung tolerably healthy.

FIBRINOUS DROPSY IN THE CHEST, PERICARDIUM, AND ABDOMEN : THE PLEURÆ, THE PERITONEUM, THE ENDOCARDIUM, AND INTESTINES, EMBOSSED WITH FIBRINOUS KNOBS.—*See* Nos. 1018. 1327.

By Dr. H. Clark, 1st Bat. Artillery.

Gunr. William Judson, 2nd Co. 1st Bn. Arty. Aged 24, admitted December 23d, 1843.

V. S. ad. ℥xxij. Fomentations. ℞ Hyd. Sub. gr. viij. Ext. Colocynth. gr. x. h. s. s.
℞ Hyd. Sub. gr. v.
P. Opii. gr. ss. ft. Pil.
4 tis horis s.

Re-admitted this evening, complaining of having severe pain in abdomen, increased on the slightest pressure, there is great tension over the abdomen. Tongue furred, pulse full, strong and quick. Bowels not open to-day, has also a cough, and pain in chest. Has felt unwell occasionally, with tympanitic symptoms for 3 weeks.

24th.
V. S. ad. ℥ xv. Hirud. xxx. abd. ℞ Mag. Sulph. ʒij. c̄. Tinct. Sennæ. Ol. Menth. Pip. ft. Haust. ter. horis. s.

Bowels freely moved, stools thin and feculent. Headaches still, but relieved by V. S. ; belly less tense and pain gone ; pulse full and bounding.

Vesp.
℞ Calomel gr. x. Ext. Coloc. gr. viij. h. s. s. Fotus abdomin. Hirudines, xx.

Pain of abdomen somewhat easier, but still has pain upon pressure ; passed 6 watery greenish stools mixed with mucus and some feculence, pulse 100, full, but softer. Tongue white, is rather thirsty, skin not so hot, abdomen tympanitic, feels very weak, complains of headache, cough rather better.

25th.
Emp. Lyttæ abdomin.
℞ Calomel. gr. iij.
Ext. Colocy. gr. iij.
Ol. Carui. gtt. ij. 3 tis horis. s.

Symptoms relieved ; but abdomen continues tense and tympanitic, pain and tenderness gone. Bowels moved copiously, stools thin and slightly feculent.

Vesp. Cont. Pilul.	Quite free from pain of abdomen, bowels twice moved ; stools dark brown fluid and feculent ; cough much the same ; pulse quick, &c.
26th. Cont. Pil. calomel. et. colocy. ter die. *Vesp.* Cont. Pil. h. s. s.	Passed a good night, several stools, thin, feculent, dark green colour, and containing crude undigested flocculi. Belly less tumid and tense, free from pain and tenderness on pressure, a soft undulating feel and less tympanitic than heretofore.
27th. Cont. Pilul. Rept. Pil. Hyd. h. s. s.	Abdominal parietes soft and flaccid. No pain nor tenderness, tension gone, but *the undulating feel continues, indicative of effused fluid* to some extent.
Vesp. ℞ Hyd. Sub. gr. v. P. Antim. gr. iv. ft. Pil. h. s. s.	Bowels twice moved, stools watery and feculent of a brown colour, no pain of abdomen, but complains of headache, pulse quiet.
28th. Cont. Pil. cu. Ext. Cambog. gr. ss. ut. heri.	Passed a moderately good night, no pain nor fever. Bowels moved twice in night, stools feculent. The same indication of effused fluid in the abdomen, gravitating downwards in the erect position.
Vesp. Cont. Pil. adde P. Scillæ gr. ij. sing. dos.	Passed two feculent stools, complains of headache, pulse quiet, some heat of skin, no pain of abdomen.
30th. Rep. Pil. Scillæ co. ter. q. q. hora. ℞ Calomel, Gambog. et Colocynth, &c.	Slept indifferently and is not so well this morning. Pulse full and throbbing, and skin rather warm. Bowels opened once, stools feculent and good, and urine as usual. The abdomen rather more tense, more the character of ordinary ascites, urine copious, but dark coloured.
31st. Cont. Med. ut. heri.	Rest disturbed by rheumatic pain about face and neck. In other respects the same, abdomen less tense and protuberant. Bowels moved copiously, stools feculent and healthy, urine abundant.
15th. Jany. 1844. Cont. Ht. Tonic. et. Anod h. s. s. Omitt Pil.	Ascites less, but anasarcous symptoms not diminished.
17th. Cont. Omnia.	Effusion in scrotum. In all other respects better.
28th. ℞ Ol. Ricini ℥vj. Tr. Opii gutt. xxv. Ol. Menth ♏ ij. Sinapism to Abdn.	Very much griped and purged.

(*Daily reports omitted until May* 29.)

29th. May ℞. Pot. Iodid. gr. iij ter die. Cont. Ht. Quassiæ Cont. Ht. et enema anod. p. r. n.	Still anasarcous. The symptoms vary, and the general affection is certainly of an anomalous character. There appears a partial and irregular effusion of *albuminous* fluid. *The deposition more frequently resembling coagulable lymph than serous fluid.*

June 5th.
Cont. Om.
Symptoms but little altered, the same œdematous effusion in parts as face and legs with tenderness of abdomen on pressure. The anomalous train of symptoms vary, but general debility continues. Bowels occasionally much disturbed.

July 2nd.
Cont. Ht. Tonic et anodyne et Enema.
Complains of pain when lying on left side this morning for the first time, emaciation great and considerable tenseness about epigastric region. There is a fulness and other indications of the liver having become more implicated in the long catalogue of diseases than formerly. It is more than probable that morbid action has been silently but extensively going on in this organ, and is at this period of his complaint, becoming more obvious.

4th.
Epigastric region very tense and elastic. Debility increasing, appetite gone, it has been precarious for weeks past. There appears but little hope of his powers rallying again, the long continued disease, under various aspects, having at length quite undermined his vigorous constitution. Difficulty of respiration much increased. Bowels moved.

10th.
Cont. Omnia.
Getting generally weaker, much emaciated. Pulse small and quick, appetite a little improved, skin cool. Bowels quieter.

12th. Greatly emaciated, getting hourly weaker.

13th. At 5 a. m. expired.

Post mortem examination.

Chest.—The right side of the chest was full of a pale transparent straw coloured fluid amounting to 14 pints by measure; the lung was compressed, and nearly altogether absorbed, the left lung was posteriorly and inferiorly attached to the pleura by cellular bands which were easily torn. The lung itself appeared healthy crepitating throughout its whole substance, the left side of the chest contained no fluid.

Heart.—The pericardium was full of a transparent colourless fluid. The heart was small; its principal bulk being formed by the left ventricle which was hypertrophied whilst the right was in a state of atrophy. The right auricle contained a mass of fibrine, it was of a yellowish colour, and gelatinous consistence, about the size of a walnut; it was healthy in every respect. The right ventricle presented nothing particular. The tricuspid and semilunar valves were healthy. Left auricle healthy, left ventricle the mitral valve was thickly studded with a number of cartilaginous bodies, similar to those found in the peritoneum. The aortic semilunar valves were healthy. *Peritoneum* was thickened and studded with innumerable opaque firm bodies, varying in size from a millet seed to a pea, and very much resembling cartilage in texture. Long cellular bands connected the whole of its surface with the intestines, they were very vascular and easily torn, no traces of the great omentum were discovered.

The Liver.—The right lobe was almost entirely absorbed by the pressure of the fluid contained in the chest, the left lobe was larger than natural, of a dark colour intersected with white striæ, as if the cellular tissue, filling up the interlobular spaces had been condensed, or been converted into cartilage. It was very friable, and so firmly connected by organized lymph to the under surface of the diaphragm, the stomach and spleen, that separation was impossible. The gall bladder contained a small quantity of yellow bile, spleen was very small, about the size of an egg, and easily torn; firmly adherent to left lobe of liver and stomach. Stomach very small, was overlapped by the liver, to which it was firmly adherent above, and in front, and below, to the transverse colon. The intestines were every where studded with the before-mentioned cartilaginous tubercles, but here they were generally smaller than upon the peritoneum, giving the surface a granulated appearance. The intestines, large and small, were connected together by cellular bands, not vascular, like those connecting the peritoneum. The colon seemed contracted throughout, but the small intestines preserved their usual calebre. In the intervals between the granulations, a deposition of albumino-fibrine in the subserous cellular tissue, gave to the whole an opaque appearance. From the diaphragm to the pubis, the organs were glued together by the products of inflammation, the great omentum was either absorbed or had degenerated into cellular tissue, the lesser omentum meso colon, mesentery, &c. were all adherent, and the pancreas was lost amidst the disorganized masses surrounding it. The cavity of the abdomen contained no fluid.

Kidney.—The kidneys were large, and although no actual disease appeared in them, it was very evident that they were in an abnormal condition. The head was not examined.

GANGRENOUS PNEUMONIA, CICATRIX OF LUNGS.

By W. Turnbull, Esq. M. D., Assistant Surgeon, H. M. 94th Reg.

(Observations forwarded by Dr. Mouat, Inspector Genl. Madras.)

Private William Harrison, age 25 years. A deserter from H. M. 84th Regiment. Admitted with Febris Cont. Com. on 24th October, and died on 4th November 1845.

Post Mortem, 13 hours after death. Tattooed over the hips and thighs to below the knees, and slightly on the breast and arms.

Head.—About an ounce and a half of serum effused under the brain.

Thorax.—Œdema of right lung. Sanguineous congestion of the left, and a small cicatrix at its apex. The lungs had a very unhealthly appearance, their substance when cut into being variegated, and in some spots greenish in colour. Heart paler than usual.

Abdomen.—Mucous membrane of stomach congested, some inflamed spots near the cardiac extremity. Liver of an unnatural greenish colour. Spleen much congested and about three times its natural size, its colour also unhealthy. Kidneys mottled and their substance softened.

The skin of the hips and thighs is preserved, for the purpose of being transmitted to the Museum, as it is an excellent specimen of the tattooing met with amongst the Burmese.—See No. 1052.

Moulmein, November, 1845.

PNEUMONIA, FIBRINOUS DROPSY OF CHEST FROM PLEURITIS, DISPLACEMENT OF LIVER, PARACENTESIS THORACIS.

By Dr. Anderson, Horse Artillery.

Illustrates No. 1395, p. 123.

Gunner John Kennedy, aged 40, Horse Artillery, admitted 2nd January, 1845. A stout built and rather muscular man, upwards of 20 years in India, not habitually intemperate, but occasionally so. Suffers from hæmorrhoids.

Jany. 2nd 1845. V. S. statim ad. syncopen. Habt. Pulv. Jalapæ Co. ʒj c. Calomel gr. iv. stat. Sol. Ant. Tart. gr. ½ ad. ℥i. omnia hora usque. ad. nauseam.	Suffers from acute pain in the upper part of the right chest, and at the lower part of the left, catching him sharply on inspiration and movement. No cough but a sudden painful stop in inspiring, pulse about 90 full and sharp, functions natural.
1½ P. M. Rept. V. S. ad. syncopen. cont. sol. Hirudines xij. ad. p.d.	No diminution of pain on breathing or movement, and the acute tenderness at the left costal edges continues. Blood nearly natural, pulse not strong somewhat accelerated.
Vesp. Rept. V. S. ad. ℥xvj. ℞ calomel gr. x. opii. gr. ij. h. s. s.	Breathing improved but pain although less, still acute on attempting to take a full inspiration. Bowels free.
3d. Rept. V. S. ad. ʒxij. App. Hirudines xviij. Hydrarg. Submur. gr. v. Opii. gr. iss. 4 ta quaqua hora. s.	Breathing much improved and unaccompanied by the acute stitch there was yesterday. A full inspiration still causes it, though in a much less degree, respiration less distinctly heard on the right side than the left, and resonance less perfect. Pulse soft about 90. Bowels twice moved during the night.
Vesp. Rept. Cal. c̄. opii gr. ij. h. s.	Has felt and breathed better all day.
4th. Cont. pil. omni 8 hora	Has passed a good night and feels much relieved. Breathing much improved, respiration and resonance as yesterday. Pulse soft and pretty natural. Gums tender. Bowels open.
5th. Rept. V. S. ad. ℥xvj. App. cucurb. cruent ad. dext. pect. et. ℥viij detrach. Pulv Jalapæ Co. ʒi c̄. Calomel gr. iv stat. s. Omni hora sexta reptr. calomel.	During the night has had a severe return of the pain in the former situation under the right nipple. He is now suffering sharply from it nearly at every inspiration and movement. The mercury has affected the mouth slightly. Pulse sharp and quick. Bowels free. Skin natural.
Jany. 5th. 1 P. M. Cont. Pil.	Breathes with less pain, but much more rapidly than natural, pain now extends from the nipple up to the shoulder. Pulse weak and very easily compressed. Bowels moved.

Vesp. H.S.Capt.Calomel gr.ss. Opii. gr. ij.	Breathing less hurried and painful. Pulse weak and compressible.
6th. App. Empl. Lyttæ ad. pect dext. Capt. Sub. Hydrarg gr.ss.c̄ opii gr. iss.—6ta quaqua hora.	Has passed an easier night, but does not appear to be better. The action of the heart is irregular and oppressed and occasionally intermits. His breathing is much faster than natural, and he is harassed with a teasing cough without expectoration. Pulse weak and intermittent.
1. P. M.	No change.
Vesp. Muriat. Morphiæ gr. ½ Mist.Camph. ℥ iss. h. s.	More feverish, in other respects there is no improvement.
7th. ℞ Tinct. Digitalis ʒj Nitrat.Potassæ ʒj Acet Colchici ʒiss Acet. Ammoniæ ʒiv. Tinct. Hyosicami ʒij. Aqua Menth. ℥iv. half an ounce every 3rd hour. Infrictr. ungt.Hydrarg. sub. claviculis	Had a little sleep, can only lie on his back. The respiration is carried on almost entirely by the left lung. Resonance of right side of chest dull nearly all over, so far as can be ascertained. Pulse irregular and labored. Gums more tender.
2 P. M. Cont. Medicine	Breathing more hurried. Pulse fainter and countenance more ghastly, complains of occasional faintness.
Vesp. Habt.Haust.m.morphiæ gr.¾ex mist.Camph.h.s.	Much as in the morning.
8th. Capt. mist. Digitalis &c. ter in die. ℞ acid. nitro muriat ʒj. Ungt. symplicis ʒj. spt. Terebinth. ʒij. To be rubbed on chest and back, until the skin is painful, Pil Purgant. Statim.	Passed a better night than usual, and the breathing is less laborious. But intercostal spaces fuller, and by measurement the right side is fully an inch larger than the left, and the liver is protruded from under the ribs. Pulse weak but more regular and without intermission, some expectoration. Bowels once moved, Urine copious.
1 P. M.	Pulse stronger than in morning, otherwise same.
5 P. M. Reptr. Haust. M. Morphiæ.	In greater pain and breathing more hurried, pulse more feeble.
January 8th 9 P. M.	Breathing continuing still more hurried and oppressed, and the pulse becoming still weaker, an incision was made in the usual manner between the ribs, and an opening formed into the right cavity of the thorax. This however only gave exit to about two ounces of serous fluid. He appeared somewhat easier for an hour, but gradually became worse and he died at ¼ before 1 a. m.

Autopsy.

General appearance of the body muscular. Right side much fuller than left, on opening the chest the whole extent of the pleura covering the right lung, except for a small extent of surface where the incision had been made, was found adhering to the costal pleura by recent adhesions, in some situations several lines in thickness, about 5 or 6 oz. of serum mixed with small flakes of lymph were in the cavity where the two pleuræ were not united. The entire substance of the right lung was hepatized, impervious to air, and friable under the pressure of the fingers. About double the usual quantity of fluid in the pericardium. Left lung healthy and all the abdominal viscera natural.

Remarks.—The acute and extensive pleuritic inflammation in this case, masked in a great measure, the pneumonia which was probably co-existent with it ; and the dullness of sound combined as it was with evident increase of the right side, and protrusion downwards of the liver at a later stage of the disease, (for at first the slightest touch produced acute pain,) was ascribed by Mr. Diaper, who saw the case, and myself, to effusion into the pleural cavity which when the oppression of breathing became more urgent than it at first, was, we conceived it was an object to remove. An accurate and practised stethoscopist would probably have ascertained the precise diagnosis, as however the treatment was not materially affected by the knowledge, this was perhaps of little consequence.

It is somewhat remarkable that at the lower and lateral part of th[illegible]eft chest, where the pain on admission was fully as acute as on the right side, no marks whatever of inflammatory action could be found after death.—*See* p. p. 31, 123.

Loodianah, 23d January, 1845.

PHTHISIS, EMPYEMA FROM VOMICA BURSTING INTO PLEURA.

SEE NOS. 779, 641, ALSO CASE 621, P. 20.

By Allan Webb, Esq.

January 1st.
Mist. Diaph.
Low diet.

Dennis D., æt. 39. Voice husky nearly gone, cough remarkably harsh, dry and husky; relieved at length by expectorating colorless mucus. Fauces relaxed, pale, skin cold, damp, cough produced vomiting. Bowels regular, stool whitish, pulse 62. expectorates a pint at least in 24 hours.

25th

Cough less troublesome. Respiration more easy, percussion dull. Tongue clean, bowels regular.

Feb. 29th Pt.
Pil. Conii et Ipecac.

Emaciates rapidly, expectoration *greenish and thick.* Percussion dull, respiration 20. Pectoriloquy distinct under the right clavicle, whilst for four fingers breadth below is heard "*tintement metalique,*" air appears to pass out of a large opening, expectoration diminished, sleep bad, bowels regular.

March 3rd.
Inf. Ros. Co. ℥i.
ter die.

Sleeps better, cough and expectoration less, perfect pectoriloquy about each nipple ;—night sweats copious, appetite good.

9th. Pt.

Emaciation proceeds, complexion doughy, cough less, expectoration muco-purulent, pulse 110, skin hot.

14th.

Much same, pectoriloquy heard in subclavian *regions on both sides,* pulse 100, respiration quick.

26th. Emaciation goes on, flatulence troublesome, sleep bad, pulse 96, soft.

28th. Same state continued till April 7th.

April 7th. Mist. Cret. c̄ Conf. Arom. et Tinct. Opii. When diarrhœa came on, other symptoms same, expectoration green and thick, pulse 112.

9th. Diarrhœa severe, features sunk, expectoration rusty.

11th. Says "*it is all up.*" Respiration 40, pulse weak 118, jaw drops. 12th.—Died 4 A. M.

Autopsy.

Body extremely emaciated, muscles pale and watery. *Head* not examined.

Chest.—A quantity of serous matter was seen effused into the *right* pleura. This membrane was much thickened by recent layers of lymph. The lung on this side shrunken to the usual size of the upper lobe. A perforation existed on its external surface, communicating with a vomica, whence the effused matter had proceeded. This vomica was about the size of an orange, its walls compact, situated near the apex of the lung, which adhered to the pleura, and also, for some distance below. In this part of the lung condensed tissue was seen, below this again, numerous small anfractuous vomicæ. The remainder of the lung condensed, infiltrated with grey matter.

Left lung adherent to the costal pleura only at the apex, where some small irregular vomicæ existed. At the base of this upper lobe, a large one was seen, adherent externally to the pleura, lower lobe œdematous, free, *containing not so much as a single tubercle.* Bronchial tubes presented nothing remarkable.

Heart.—Universally adherent by old cellular adhesions to the pericardium.

Remarks.—The vomica appears to have burst on the day preceding his death, when respiration rose to 40, pulse 118.

[N. B. No. 1563 shews gangrenous ulceration in the lung of a Hindoo child, a slough opened from the lung, followed by the same results, fibrinous effusion.]

BRONCHIAL TUBERCULOSIS, ŒDEMA OF LUNGS, ILLUSTRATING Nos. 938, 376, 285.

By Allan Webb, Esq.

1832. March 7th. V. S. ad. ℥vi. Baln. Tepid. Mist. Emetica. Reuben C. aged 7. with acute peripneumony of 4 days duration, strumous appearance, chest narrow. Respiration 88, '*râle crépitant*' heard at the base of the right lung, '*râle sonore*' all over the back. He lies on the left side which cannot be examined. Skin hot, pulse rapid 140, has great thirst, tongue coated grey, coughs seldom.

8th. Hirud. ij. trachea. Pulv. Ipec. gr. viij. Cupri. Sulph. gr. iij ft. Emetic. Much better, vomited often, bowels open freely, cough more croupal.

9th. Repet. Emetic. Little altered, expectoration tenacious, uses his fingers to expel it.

10th. V. Ipecac. ♏ xv. Liq. Am. Acet. ʒij. Aquæ ʒ vi. 4tis hor. Better, vomited freely, bowels acted on 4 times respiration 86, has great thirst.

12th. V. S. ad. ʒ iv: Is delirious, skin hot, pulse rapid.

14th. Better, face pale, has pain in the bowels, little cough, pulse 140, respiration 60, vociferous, furtive expression of eyes.

16th. Died.

Examination.

Head.—Effusion between the pia-mater and arachnoid, also into the ventricles. Brain softened.

Chest.—*Right lung* solidified, no part crepitous, not deeper colored than the healthy organ, but when sliced offering innumerable hard whitish points, varying in size from mustard seeds to common peas, at first taken for ordinary tubercles, but proving to be hardened secretion of the bronchial ramifications themselves; portions of more blood red color towards the base were seen, without a trace of tubercles in the pulmonary tissue itself. On tracing the bronchial tubes, the mucous lining of some of them was pale, their calibre dilated, containing this hardened matter (a semi-concrete caseous matter) and pus; others of them were of a livid violet color, containing bloody mucus.

Left lung more healthy, but presenting the same general character.

Abdominal viscera were healthy, (I understand, for illness prevented my attendance—the lung I examined in my own room.)

Remarks.—This is evidently a case *of the primitive bronchial tuberculosis*—described by Rokitanski as occurring especially in children. (Since the last meeting of the Medical and Physical Society of Calcutta, the very accurate description of Rokitanski has been given in the Brit. and For. Med. Rev. The remarks on tubercular phthisis are of such high value, as might be expected from Dr. Forbes.)*

PULMONARY AND BRONCHICAL TUBERCULOSIS, BRONCHIECTASIS, ŒDEMA OF LUNGS, ATROPHY OF THE HEART, ANASARCA. See No. 1348, 1410.

By Allan Webb, Esq.

January 25th C. P. aged 30. Was bled (ad. ℥x.) before admission. Has dark hair and eyes, delicate complexion, not much emaciated. Never been subject, to other illness than severe cough. Last attack commenced a month ago. Three weeks since, began to spit, thick yellow stuff, a week ago, the legs began to swell, and are now œdematous and *pit* on pressure. Voice hollow, cough not very urgent. Percussion more dull than natural on both sides; on right side the chest is more dull than on the left. Respiratory murmur is mixed with gurgling sound at upper anterior part of the chest on right side, where pectoriloquy is distinctly heard. No pain in the chest. Tongue clean, moist, red at tip and edges, appetite good, bowels regular, urine free, does not sweat at night, has thirst, especially in the evening, skin cool, heart's action apparently natural, pulse 86, hard.

℞ Tinct. Digit. ♏ xv. bis die ex aquâ sum.
Mist. Mucilaginos, ℥ i. ter die.

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* These cases of bronchial tuberculosis are of European origin.

28th. Low diet.	Feels weak, pulse more frequent and feeble, legs less swelled, urine more copious, cough more troublesome expectoration thicker, tongue clean, bowels open, appetite good, skin cool.
31st. Omit. Digitalis.	Has giddiness and faintness on assuming erect posture, cough troublesome, sleeps well, noise of softened tubercles heard at apex of *left* lung.
6th. Feb. R Mist. Ferri. C. ℥j. ter die.	Little altered.
9th. Pulv. Cal. cum. Rhœo. stat. Omit. alia.	Stomach rejects the mixture, cough less, expectoration less, legs swelling again, pulse 100, feeble.
12th. ℞ P. Digital. et Scillæ ā gr. j. 4tis. horis.	Much the same, legs swelling more since leaving off the medicine, pulse quicker.
15th. ℞ Tinct. Digit ♏xv. ex Aquâ Cin. o. m.	Has taken Digitalis gr. j. ter die, last four days. Has now faintness and fluttering on slight exertion, pulse feeble intermittent 92 when recumbent, rose to 112 on sitting up in bed, cough less, expectoration little, common colorless mucus, emaciation goes on, no night sweats, face very pale.
17th. Omit Digitalis.	Much same.
20th. Pt. in usu Tinct. Digitalis o. m.	Complains of tightness in abdomen which is swelled, œdema of legs increasing, cough and expectoration dimininished, pulse,feeble, 90, tongue clean, bowels open.
23rd.	Legs are less swelled, makes considerably more water. Pulse regular, 96, feels rather faint, cough more urgent, a few streaks of blood in expectoration.
25th.	More cough, no pain in chest, makes more urine, pulse 86, unequal, respiration 24, *râle crépitant*, heard on right side with *son mat* on percussion.
27th	Not so much swelling of abdomen or extremities, cough more urgent, expectoration trifling, of colorless mucus, pulse 98, tongue clean, preternaturally red, bowels open.
29th.	Swelling of legs, more cough, and expectoration less. Left the Hospital at his own desire.
March 28th. Wine ℥iij.	Returned again.

Has been away three weeks, legs and thighs exceedingly œdematous, red blush inside latter which are painful on pressure, had diarrhœa this last week, cannot stand from debility, makes little water, does not perspire.

Chest sounds very dull on percussion, is also œdematous, *râle sonore*, general over anterior surface of chest, (*Posterior* cannot be examined since he can neither sit up, nor lie on his side), resonance strong under clavicles, voice not strong enough to determine pectoriloquy, even here *râle sonore*, is so loud as to obscure other sounds, respiration 28, countenance sunk and anxious, pulse too feeble and indistinct to be stated, upwards of 100, tongue very red, thirst great, appetite bad, bowels purged.

29th. Called to him early in morning, found him dying.

Convulsive respiration, loss of pulsation, of consciousness, &c.

Examination, 36 hours after death.

External appearance.—Body generally anasarcous, blistered in many places, some of which have discharged a plentiful quantity of serum.

Head.—Not examined.

Chest.—*Right lung* universally adherent to the costal pleura, pericardium, and diaphragm. To the central tendon of the latter it adhered by substance like ligamentum flavum, quarter of an inch in thickness. *Left lung* presented old cellular adhesions, and the pleura of this side contained 12 oz. serum. *Both lungs* externally of a blackish grey color, and when cut yellow serum oozed out in great quantity not mixed with blood, in some places little, in others not at all spumous. More minute examination shewed the upper part of the *right lung* to be blue as indigo, containing bony productions here and there, of the size of horse beans, some parts, an inch in diameter, were nearly cartilaginous, sinking in water. A portion of the *middle lobe* (right) appeared white, contrasted with surrounding blackness, was emphysematous, light, crepitous ; when sliced, bronchial ramifications oozed semiconcrete, putty looking matter. *Lower lobe,* crepitous anteriorly, œdematous posteriorly. The *primary bronchial tubes,* were thicker and stronger than I ever recollect to have seen, with thick strong cartilaginous rings. Mucous membrane in thick longitudinal folds. The spur-like processes at their bifurcation strongly developed (like semilunar valves.) Whenever a bronchial tube entered a portion of œdematous lung it lost instantly all its peculiar character, becoming thinner than a vein, and leaving the pulmonary substance to be seen distinctly through it ; in many cases this transition was marked by a ridge in the mucous membrane, many of the tubes were dilated to the size of duck quills even at the very periphery of the organ, while others were very much dilated at the root of the lung.

Left Lung.—The superior part of the *upper lobe,* was literally black as ink, hardened, sinking rapidly in water. On slicing it, a small cavity about the size of an almond, filled with tubercular matter (caseous) was seen —two or three others also occured filled with concrete matter (intermediate of caseous matter, and concrete mucus) with difficulty got out of the cysts, which were lined by membrane black as ink, apparently formed by bronchial tubes dilated to the size of common nuts. Some adjacent tubes contained hardened matter strikingly resembling the contents of these cysts. The black and completely solid portion of lung before described, passed gradually into more healthy substance. The base of this upper lobe was united to the lower lobe by fibro cartilaginous substance. *Lower lobe* was almost universally œdematous, bronchial tubes of left lung were similar in character to those of the right.

Heart.—*Very small, scarcely half the usual size,* left ventricle would hardly contain a walnut, its walls, at the apex even, were an inch thick, right ventricle natural, but contained a coagulum so firm as to be with difficulty got out, same kind of coagula existed in all large vessels leading from the heart. In the divided ramifications of the pulmonary artery they projected like injection from a divided vessel, so tenacious were they as to be drawn even from the smallest branches, thus giving a fac-simile of the numbers, size and disposition of the branches that contained them.—See No. 1410.

Abdomen.—Liver pale, enlarged, as were the kidneys also. Other viscera healthy. A pint of serum in general cavity of peritoneum. Mucous membrane of colon shewed slight elevated spongy patches in its sigmoid flexure.

Reflexions.—What caused the dilatation and thickening (hypertrophy) of the bronchial tubes ?* Did they produce pectoriloquy ? What caused their thinning (atrophy) so manifest in those entering the œdematous portions of lung ? Did hypertrophy of the left ventricle alone cause dropsy ? How? Must not the blocking up of the pulmonary arteries have retarded all the blood behind it ? Hence œdema of chest, dropsy of abdomen and legs, the formation of coagula in the great veins and right side of the heart, shewn by indistinct pulse—(See p. 68.) The starting point of all this disorder was the blocked up bronchial tubes cutting off completely the capillaries of the lobules they supplied from aceration. What produced atrophy of heart ?†

Can the contents of these cysts be considered as real tubercular matter ? There being no tubercles elsewhere ?‡

BRONCHIECTASIS, BRONCHIAL AND PULMONARY TUBERCULOSIS.—ILLUSTRATING Nos. 285 1348, 376.

By Allan Webb, Esq.

February 1st. V. S. ad. ℥xii. ℞ Ant. Tart. gr. ij. Mag. Sulph. ℥j. Aquâ ℥ viij. M. ʒj. 4tis horis sumend.	J. G., aged 27. Has had spitting of blood, cough, purulent expectoration, night sweats, diarrhœa for a month past, health before this robust, lost flesh and strength rapidly since ;—face anxious, lips livid, respiration quick, attended with pain, pulse frequent skin hot, bowels confined.
2nd.	Is easier, slept better, medicine nauseates. Percussion generally dull, better towards the base of the chest. Respiration quick, '*râle crepitant*' heard on the sides of the chest. Respiration bronchial at the back of the chest, sputa tenacious, adherent, frothy, tinged with blood ; tongue white, bowels open, skin cool, extremities warm, resonance very strong at apex of each lung, almost amounting to pectoriloquy, voice hollow, cavernous.
3rd. ℞ Mist. Mucilag. Pil. Sap. cum. Opio. h. s. s.	Slept better than for a month past, bowels purged, cough better, sputa not so frothy nor tenacious.
10th. V. S. ad. ℥ vi.	More cough and fever, Respiration 30, cough urgent, hard, sputa streaked with blood, pulse 100 face flushed, skin hot.
13th. V. S. ad. ℥vi.	Same symptoms relieved by bleeding.
15th. ℞ Acid. Hydr. ♏ ij. Aquæ Distil. ℥ j. ter die sum.	Cough worse, with pain on inspiration, pulse 112, respiration 30, '*murmur de-frottement*' is heard on the right side.
20th.	Better.
25th. ℞ Pil. Conii. Ext. cum Ipecac. h. s. s.	Cough worse, respiration bronchial 36, pulse 134, says medicine makes him sick, is in no pain.

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* See the explanation of this at p. 132* *Note.* † See p. 89 *Note.* ‡ See p. 190.*

27th. V. S. ad. ℥ vi. (cupped and buffed.)	Has giddiness, pulse 130, respiration 30, cough worse, expectoration less, tongue clean, bowels open.
28th. V. S. ad. ℥ viii. (neither cupped nor buffed) ℞ Pil. Sap. cum Op. gr. v. O. N. Pt. in usu Acid. Hydrocyanic.	Face flushed, lips and tongue dry, skin pungently hot, pulse 136, respiration 30, pectoriloquy heard above the left nipple, respiration bronchial on the right side under the clavicle, respiration is wholly abdominal, chest fixed, sputa watery, frothy, spotted with blood, half a pint to-day, percussion gives '*son mat*' over the whole of the front of the chest.
March 3rd. ℞ Acid. Hydrocyanic. ♏ ij. 2nd. quaq. hora.	No better, respiration 36, pectoriloquy heard under the right clavicle and almost perfect for a hand's breadth below. Nearly same phenomena observed on the left side, pulse 140, skin hot, bowels regular, tongue white.
14th.	Sinking, greater anxiety and depression of spirits, face livid, body covered with cold sweat, pulse fluttering—says, "he will want nothing more." Died 2 A. M.

Examination after death.

Head.—Healthy.

Chest.—Lungs do not collapse, adherent to costal pleura by vesicular adhesions, with fluid in the cells. This also is observed between *lobes of right lung*, these adhesions are loose admitting motion. Not so those *on the left*, which were close. Lower lobe, however, of the left lung was free, and floating in about a pint of serum.

Both lungs externally were of a mottled light color. *Mucous membrane* pale, sightly eroded about the chordæ vocales, pale in the trachea until near its bifurcation, when it became injected of vermilion hue, as also the first bronchial divisions. Some of these latter were observed after passing on the right side a short distance into the lung to *dilate* into cavities, of various sizes. Some pod-shaped, would again contract, and dilate again into cavities, which would contain a common nut;—some continued dilated till within a line of two of the surface of the lung, and were filled with tenacious tubercular matter, which could be drawn out like coagula. Most of these dilated tubes seemed to lead to depots of muco-purulent or softened tubercular matter. Some cavities again were anfractuous, not lined by mucous membrane, but merely shewing broken-up pulmonary tissue. Others again were lined by a continuation of the bronchial mucous membrane, and even the cartilaginous rings were visible to within a line or two of the periphery of the organ. The intermediate substance of the lung, was occupied by tubercles, and grey matter thrown out between them, so as to render it perfectly impermeable to air, excepting its base, where being more widely scattered, they left between them, intermediate portions of healthy lung. When sliced this lung had a granite appearance, presenting numerous points, whence pus exuded, and some empty cells, before described.

Left lung presented little difference, superior part of upper lobe resembled a honey comb, so numerous were the cavities. But in greater part of them the bronchial membrane could not be traced throughout, for they were merely practised in the broken down pulmonary structure and smeared with pus. Some were filled with tubercular matter or pus, a large vomica that would contain an orange, was seen in the base of this upper lobe, it was seen to be studded with points of pus. Some as large as a pea, a little of the lung only remaining at the base, not occupied by tubercular infiltration. The bronchial tubes in this lower left lobe which contained the pus where of a deep violet colour. (*See a case in native of Bengal p.* 119*.) *Abdominal viscera healthy.*

Remarks.—The deposition into the bronchial tubes of tubercular matter is distinctly observed, notwithstanding the co-existing bronchitis, the dilatation and hypertrophy of the tubes well marked, and the correspondence of the pathological phenomena with the facts recorded during life very satisfactory, especially the vesicular adhesions, as pointed out by the '*murmur de frottement.*' This and the former case very strongly bear out the truth of Rokitansky's description.

"It is a disease of the terminal branches of the bronchi; at least it developes itself originally in them, and extends from them into the larger tubes. It occurs especially, like pulmonary tuberculosis (ordinary phthisis) in the upper lobes, but is contrasted with that disease, in that it is frequent in the peripheral or superficial ramifications, affects a larger section of the bronchial tree, and that, on a transvers section, *one finds the pulmonary parenchyma traversed by large, thickly-walled, bronchial tubes, filled by caseous tuberculous matter.* It is often combined with tuberculous infiltration of the pulmonary parenchyma, but often is completely independent. In the latter case the obstruction of the bronchial tubes, leads to obliteration of the vesicles, and wasting of the parenchyma connected with them, and one then finds the obstructed tuberculous bronchi, branching in a ligamentous, shrivelled, elastic, and tough tissue. The tuberculous matter, in these cases, passes through its usual changes. It either softens, and then the bronchial walls are not unfrequently destroyed, and involved in collections of tuberculous pus, collections in which (contrary to those which are far more frequently formed by softening of pulmonary tubercle) the destruction of the bronchi, is the primary change; or else the *tuberculous matter undergoes another, the calcareous, metamorphosis, which is especially apt to occur when the bronchus has been completely closed by it.*"*

N. B. *These cases of Bronchial Tuberculosis were read before the Calcutta Medical and Physical Society, April* 1843.

PHTHISIS, HEMOPTYSIS, ŒDEMA GLOTTIDIS, (SEE No. 677) CICATRIZATION OF TUBERCULAR VOMICA.

By Allan Webb, Esq.

February 21st.

V. S. ad ℥vi.

Anne L.. Œt. 24. Not menstruated last six *months* has suffered phthisical symptoms ever since. Is much emaciated, hectic flush on cheeks, eyes sunk, spitting

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* Brit. For. Med. Rev. London. Jan. 1843.

Cal. gr. vi. Opii. gr. i.
Stat.

of scarlet blood came on last night, mixed with much tenacious sputa, pulse 120, hard ; cough harsh ;—had diarrhœa a few days ago stopped by Pulv. Kino. Co. bowels not open when hemoptysis came on.

22nd.
℞ Mag. Sulph. ʒss.
Tinct Opii. ♏ x.
Infus. Ros. ℥i.
ter die sum.

Slept pretty well, skin perspiring, tongue clean, bowels open, cough less, sputa still bloody. Respiration 36, abdominal,—Pulse 114 ;—is drowsy still

26th Pt.

No spitting of blood, face less flushed, cough urgent, free from pain. Bowels open, tongue clean, pulse 106. Respiration accompanied by *mucous râle,* afraid of swallowing, lest she be choked, voice less distinct.

March 1st.

Is very weak, connot sleep ; spirits depressed, respiration 30. Pulse 120, appetite bad, bowels open, '*râle crêpitant*' over whole front of chest, sputa frothy, tenacious, and colorless.

4th. Pt.

Face pale, alæ nasi dilated. Respiration 34, skin warm ; pulse 116 ; expectoration, a pint in twenty-four hours, frothy, colorless, with large bubbles.

6th. Pt.

Face more livid, respiration 50, expectoration same in quantity, cavernous rattle, and respiration under both clavicles ; *no voice.* Pulse 120, sweats much.

8th.
V. S. ad. ℥vii.

Pain in chest, with '*râle crepitant*' still continues.

10th.
V. S. ad. ʒvi.
Sp Ether. Nit. ʒss.
Vin. Ipecac. gt. xx.
Mist. Camph. ℥ss.
Hot Air Bath, 110 Fahr.
Spt. Am. Arom.

Symptoms of great pulmonary congestion ; face livid, extremities cold, respiration 50, pulse 140, sputa purulent, sweats profuse, mucous rattle.

No better. at 8 P. M.

10 P. M. No improvement. Took two or three tea-spoonsful, while in bath, sweat broke out, expectorated some mucus with relief.

11th.

Perspired profusely all night. But is sinking fast, although the face is less livid.

12th.

Died 2 A. M.

Examination 14 *hours after death.*

Body. Generally, not much emaciated.

Head. Not examined.

Chest. *Lungs* did not collapse. Adhesions numerous to pleura costalis, along the upper posterior surface of both lungs ; numerous other adhesions of more recent date, along the anterior edges, and base, and wherever a group of tubercles were softening and likely to open into the pleural cavity. Similar adhesion between the lobes. A vomica, size of an orange, with compact lining, in the apex of the *right* lung, nearly empty, communicating freely with a bronchus. Remainder of this upper lobe, thickly studded with tubercles. Intermediate substance of the lung crepitous, right lung rather more red than usual, and oozing out frothy bloody serum, on pressure. Middle and lower lobes, more free of tubercles. But even at base some were observed resting on the diaphragm, beginning to soften, The tubercles were in all stages. Some alone, size of mustard seed, just softened in the centre, or quite hard. Some in groups, surrounded by black pulmonary tissue, pultacious or partially so, some were like small vesicles, containing thick fluid, no grey infiltration. In the *left lung*, at its apex; a vomica existed, size of a walnut, its external surface collapsed, *corrugated in a way to give the impression, as though it would cicatrize, quite empty*, another same size, beneath it. Remainder of this lung resembled the right, There was œdema of the glottis, and of the mucous membrane lining the rima, which was very pale. This in life must have nearly closed it. Mucous membrane of trachea generally of bright vermilion hue, covered with vermilion colored mucus, which blocked up the first bronchial divisions; while this bright scarlet, hue extended throughout even the smallest. Abdominal viscera healthy.

Remarks. 1st. Loss of voice on 6th March, partial loss on 26th February, with dread of deglutition, explained by the œdema of the glottis.

2nd. From the appearance observed in the mucous membrane of trachea and bronchi, it may be deduced that hœmoptysis may result from sanguineous exudation from the capillaries, the membrane remaining entire.

3rd. Tubercles seen in all stages, no grey infiltration, these therefore are distinct morbid phenomona, infiltration not depending on tubercles approximating; but on deposition within the air cells whilst common tubercles are deposited external to the cells. See p. 122*.

ARREST OF PHTHISIS, COLLAPSE AND CICATRIZATON OF VOMICA.

By Allan Webb, Esq.

Mrs. S.——East-Indian lady, Œt. 30. . Suffered three years ago, from an affection of hip, for which setons of large size were kept discharging for four months, with so much general irritation as to raise the pulse to 130. No disease existing there when I saw her, these were withdrawn. Has one living child about eleven months old. She complained more or less of cough for nearly ten months before the birth of this child, which cough has been more constant and severe since. About seven months ago, she broke a blood vessel in the lungs, and felt much loss of strength though did not lose much blood. Both before and since, the expectoration has been frequently tinged with blood. There have been profuse perspiration, and thick purulent expectoration, whilst latterly she has been feverish at night, and cannot sleep. Emaciation and general debility great. The appetite capricious. The catamenia irregular, scanty, and pale, with considerable pain in the back.

Percussion elicits a dull sound for three fingers breadth, below right clavicle. In scapular region, near the spine, the sound is dull, and also over the back of the chest, generally; dull sound of the heart's action distinctly heard over the upper anterior part of the chest on the right side: pulse 96. *Respiration* 24, scarcely audible for three fingers below right clavicle, indistinct in the right scapular region, and also right axillary region, in which gurgling sound is often indicated, puerile in several parts of the left side of the chest, anteriorly in left axilla over one spot it is not heard. Posteriorly along the back on both sides more or less indistinct, *voice* is weak sometimes, she says scarcely audible, but nearly perfect pectoriloquy, with strong resonance, is heard above and below the centre of the right clavicle, expectoration, in rounded masses, sink in water cheesy colour.

August 27th
℞ Pil. Hydrarg.
Ext. Hyos. ā. gr. iij.
Pulv. Ipecac. gr. j.
ft. Pil. ij. bis die
sum. Ext. Hyos. gr. viii. ft. bolus, h. s. s.

Pain is felt about scapular region, about left sid of chest in axillary region. Cough not very hollow great sinking in of the integuments over supra clavicular region on talking, cough worse on lying down or first rising, bowels relaxed, face sallow and anxious.

28th.
Omit. Pil. bis die.
Repet. alia.
Plain diet.

Sick from pills, slept well, expectoration easier, pectoriloquy more distinct on right side, when previously indicated.

29th.

Complexion clearer, appetite better, sleeps well, loss anxiety of face, pulmonary symptoms much relieved.

31st.

Much the same state.

Diagnosis.—Tubercular affection of both lungs, suppuration and cavity, in apex of right lung ;—doubtful on left side ;—considerable general solidification.

Remarks.

Before she left Calcutta, expectoration had ceased, cough was nearly gone, had gained flesh. The strong resonance which almost amounted to pectorloquy was no longer perceived. Complexion clear, spirits good, chest had sunk under right clavicle, more on left side than the right, voice strong, no pain, no fever nor sweats. *Vomica had callapsed, if not cicatrized*

Returned to the Upper Provinces, but died about a year and half afterwards after the birth of another child. The disease having made rapid progress in the climate of Assam.

CONGESTION OF LEFT LUNG, AFTER WOUNDS PIERCING THROUGH THE HEART.

By Mr. Thomas, Student.

Examination 16 hours after death, in the presence of the coroner, of the body of a man run over by a buggy wheel yesterday, who breathed his last in the college compound, about quarter of an hour after the accident. There were no external signs of injury to the body, the abdomen was very much distended with an accumulation of gas. On laying open the scalp, it was found to be extremely vascular, the membranes of the brain highly congested, and its substance shewed signs of great vascularity, and the ventricles were filled with serum.

Chest. On removing the integument of the thorax, anteriorly, it was discovered that the sternum was fractured at its centre transversely, and the 3d and 4th ribs were broken into several pieces, with their spiculæ pushed downwards, and on lifting the cartilages of the ribs with the sternum a large quantity of coagulated dark blood was observed immediately under the site of accident. The pericardium was lacerated in three points, and also the left ventricle of the heart even extending in one place right through the septum ventriculi, the wounds being filled with coagulated blood. The left lung extremely congested, and approaching to a dark color, the right lung presented nothing worthy of note, except that it was of a red color at its lower portion, which might have been dependant upon gravity.

Med. Col. Cal. Aug. 6th, 1847.

OBSERVATIONS.

RETROSPECT OF THE PRECEDING INSTANÇES AND CASES OF OBSTRUCTION OF THE RESPIRATORY ORGANS.

The record of facts now given, shews as already predicted, that phithisis and pulmonic affections are at least not uncommon diseases among HINDOOS and present every form and variety that is to be met with in any other race of mankind. The preceding pages prove not only the existence generally of this great family of diseases among Natives, but also among Europeans in INDIA. The facts may appear to have been recorded with too great an amplitude of detail for the plan of this work. I must however plead in excuse, a desire to counteract an erroneous impression, prevalent not only in Europe, but common even in INDIA, namely, that affections of the respiratory organs are rare in this climate ; and that a minute attention to their pathology, though useful and applicable to practise in Europe, is of but little importance here. Moroover as before observed, this great family of diseases of the respiratory organs, like those last recorded of the heart and circulation, will be sought for in vain in any other work upon INDIAN diseases. Besides it is time, to supply something better than mere vague assertion upon these subjects, DR. WAITZ only agrees with most other writers, in saying of disease of the lungs or heart in INDIA "non est inventus." But is it so? Again it is easy to say 80 per cent. of half caste children are scrofulous ! 50 per cent of Natives ! ! 40 per cent. of Europeans ! ! ! but where are the proofs ? One would readily excuse some little prolixity of detail in freeing from all ambiquity statistics of so great importance. Hence the necessity in order to arrive at strict and definitive truth, of carefully *fixing* this part of INDIAN pathology by well-established facts. There are however so many difficulties in the way of attaining this object, inseparable from the climate, and so many prejudices opposed to the study of morbid anatomy in this country, in quarters even where it should least be expected, that it seemed to be a duty particularly incumbent upon me, with the ample materials which are afforded in the Medical College of Bengal, to endeavour to illustrate this branch of Indian pathology more amply than has hitherto been effected, and in this way to carry out so far as I may, the intentions of Government in forming a central Pathological Museum for INDIA.

The facts which have been adduced are generally proved in three distinct forms, 1st. by permanent records, the morbid specimens in the Museum, derived for the most part, from Natives brought to the dissecting rooms—(This plan was practised by the great MORGAGNI as respects Italy.) 2d. by the histories or cases of natives in various parts of INDIA. 3rd. from the cases or histories, of Europeans in INDIA, being chiefly derived from the official records of the Medical Board of Bengal. Respecting these last cases. I may mention that the autopsical details in many instances were abundant, but in no cases but those given by DRS. GREEN and GOODEVE were the stethoscopical symptoms during life recorded. If however, it be once admitted that pulmonic diseases are common in INDIA, the stethoscope will no longer be so generally laid aside, and pathological investigations will become more accurate. As regards children especially, speaking from my own experience, in the Hospitals of the Government Orphan Schools, and of La Martiniere, I can assert that these diseases are extremely common, both with East Indian and European-born children; and from the absence of those more prominent indications cough and pain, are so liable to be overlooked in a general diagnosis of fever, that careful watching and examination by the stethoscope, cannot fail to meet with an abundant reward, in successful practice. Remedial agents will then be applied with greater precision, than now often obtains, to a pneumonic condition upon *the first onset*, as marked by its diagnostic symptom the *râle crépitant*, and this must be *sought for*. It is often only partial, depending upon partial pneumonia, but in every case it should be acted upon *before* the appearance of purulent sputa, these being indications that active measures are less necessary. Nature is curing the disease herself, and bleeding and tartar emetic, will be now positively injurious.

But to return to the facts recorded, it is true, there is but little new in them. Yet it is a no small satisfaction to find that the labors of pathologists in Great Britain and France, in Germany, in Holland, and in Denmark, are also applicable to INDIA. Notwithstanding this, when I look over my own notes of cases examined in one of the Royal Hospitals of London, at a time when the duty of examining all cases *post mortem*, devolved upon me. I see a great difference contrasted with the same diseases occuring here. A difference not in kind, but in degree.

Here there is a general tendency to softening, to a disorganizing and dissolution of the texture. This is characteristic of tropical inflammation, in all other organs. But this dissolving tendency is much more prominently seen in pulmonic inflammation of Natives, than it is in Europeans; even when they both live in the same country. Asthenic pneumonia breaking up all the structures of the lungs, is the commonest form of pulmonic disease amongst Natives. And even in the slower progress of tuberculosis, we never find with them, those pauses, nor those indications of arrest, or of limitation, which in Europe, and with Europeans, even here, is common ; and which in the case of tuberculous diseases, shew attempts at a favorable conclusion. There is no effusion of healthy fibrine to limit the destructive invasion of the tissues. (see pp. *104 *105.) We do not usually meet with ligamentous, elastic, tough tissue; nor callous degeneration of the tissue round a cavity, with cicatrization and falling in of the cavity and obliteration of bronchi, nor with instances of cartilaginous degeneration. But on the contrary, an aplastic, sero-puriform effusion, would appear to rot, or render sodden, and easily disrupted, the whole pulmonary tissue, in pneumonia. Bronchitis is even seen to terminate in *sloughing* of the tubes, a result I never saw elsewhere.

I have already commented upon proofs, or what appear to me such, that tuberculosis of the lung, as also of the liver, is often at all events, a mere sequence of inflammatory action in those organs. If inflammation begin near the draphragm tubercles will appear first upon the adjacent lung. A few days ago another illustrative fact was brought for my investigation. A poor native woman came into Hospital and died of peritonitis in twenty-four hours Worms (as is not uncommonly seen out here) had perforated the intestines ; acute inflammation came on glueing and matting the intestines together. The liver, spleen, and uterus, participating, as well as the heart and lungs. The lungs were first inflamed near the diaphragm. Tubercles are seen, there first, Interstitial tubercular deposition is mixed with the subsequent rotting effusion, and more generally diffused throughout both lungs. This sero-purulent effusion, distended the air cells breaking them up in the centre of the organ into numerous cellular cavities, varying from the size of millet seed to peas, and emptied by slicing. Whilst the real tubercle, recognized as such by the microscope, remains even after immersion in spirit.

It appears to me of some importance to observe, that all our specimens of inflamed lung, at the early stage have the *cells dilated* to three or four times their natural size.† This is apparent if we compare them with perfectly healthy lung,‡ or even with œdematous lung,§ and must be therefore a law, a general fact, as far as INDIA is concerned ; but I do not remember to have observed it in Europe, nor to have seen it observed by others.

If it be general, we can understand better the disastrous action of the common asthenic pneumonia. The air cells of our lungs are not of the irregular form which we see in the alligator for instance|| ; some cells being large enough to thrust a thumb in, probably designed for his leasurely respiring under water; another set as big as a pin's head for respiring in air. But we have our air cells of a pretty uniform size, in health; just big enough to see; a pin point may perhaps rest in them ; but each of these is lined and covered all round by a dense net work of capillaries, in which the blood freely circulates in health. But what happens in disease, when these capillaries throughout an entire lobe, an entire lung, or both lungs, transude fluid sero-puriform fluid into the cells? There might, in the frog or in the alligator be a filling up of the little cells, but the greater ones would take long to fill up, nay the lesser cells could relieve themselves by dilating, and swelling, and encroaching upon the greater cells ; but in man where all are equal sized, or nearly so, the capillaries must be themselves compressed. The greater the compression, the less the number of blood vesicles that can be brought up to breathe; and if brought to the lung they meet not with air, they stagnate and congest and increase the evil; till at length the very nutrition of the lungs as a fabric is impeded, and what should follow—gangrene :—even of half a lobe, as in No. 1405. Many instances of this occurred last cold weather in the dissecting season. But the plastic secretion of a regular English pneumonia is less fatal; than these swamping desolations of tropical asthenic pneumonia. For well formed pus does not act so injuriously upon the organs on the one hand, nor on the other is the inundation so abundant nor universal as entirely to exclude air. Examples however of true fibrinous exudation are not as we have seen altogether wanting, in the pulmonic diseases of Natives.

LOSS OR ABATEMENT OF THE BLOOD'S RESPIRING FACULTY.

But our life itself is intimately bound up with the integrity of respiration. (" Respiratio, in qua quasi vita ipsa consistit. HUXHAM.) This leads me to adduce other abnormal conditions of this function which have rarely accorded to them a place among its special lesions, arising from the circumstance of their leaving few or no traces of their existence when life hath departed ; although they may be sufficiently manifest before this catastrophe occur.

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* See No. † No. 265, 638, 1517. ‡ See No. 843. §See No. 243. ||No. 389.

In order the better to understand these peculiar diseases, we may as well cast a retrospective glance upon those already adduced for the sake of contrast. Now to those which have hitherto engaged our attention, obstruction, *mechanical obstruction to the organs*, of respiration, would be the term best suited generally. The great passages by which air enters, may we have seen, be impeded from *without*, by tumours, aneurismal, or glandular, or otherwise; or by purulent collections: or *within*, by œdematous or inflammatory infiltration about the glottis:—by fibrinous, or purulent, or serous effusion in the tubes. The air cells may be filled up *within*, by blood, or pus, or serum, or plastic secretions; or compressed from similar causes *exterior* to the cells, but still in the parenchymatous or true pulmonic fabric; or the whole lung may be compressed, and collapsed by the presence of air in the cavity of the chest:—by serum, by blood, or purulent effusion, or from the invasion of this cavity owing to the enlargement or displacement of neighbouring organs. But yet all these may be classed generally as *mechanical obstructions:* either—1st, mechanically preventing the influx of air to the cells—or 2d, preventing access of blood to the cells—or 3d, varieties of both obstructions combined.

But to comprehend the more common, and therefore more important disorders of respiration embraced in this present section, other laws of our vitality than circulation *for* respiration. must be considered. I say *for* respiration, because, to enable the blood in every part of the body to breathe, man is endowed with heart and lungs. A *double heart* is never found without lungs, the pulmonic heart is a machine super-added for this very purpose, that all minute blood corpuscles distributed throughout the whole body, may, when they come up to breathe in the lungs be properly propelled into contact with oxygen. In fact we must well understand that *the blood vesicles are the true respiratory organs:* and as the air cannot get to them, by tracheal tubes extending down to our fingers and toes, as it does in insects; nor even through our bones, and muscular interstices as it does in birds; why there is nothing left for it, but that these said vesicles must come up and breathe, where alone they can get fresh supplies of pure breath, namely in the lungs. The child in its mother's womb can thus send its blood for breath to its mother's lungs.

But how do they do this? Can they do this at all times? May they not come up and find air, but not air they can breathe, not vital air, but poisonous exhalations? and what will then ensue, some disorder of their respiration (the blood vesicles) but what? what will it be called? Perhaps it may be jungle fever, may be hill colic, or cholera asphyxia, or apoplexy!

In man circulation and respiration are only parts of one and the same function, which is completed in true *respiration by the blood.* The blood *must* circulate in order to breathe. Whatever therefore stops inspiration, in other words, whatever prevents air getting to the blood, will cause asphyxia and death; and in like manner whatever stops the circulation, or blood getting to the air, will equally cause asphyxia and death. We see then the force of these expressions, 'blood is life,' and 'breath is life.' The poetical expression of VIRGIL 'anima purpurea vomit' is just equivalent to our own more common idiom 'he breathed his last.'

BLOOD.

In the diseases now to be considered I shall no longer limit my enquiries respecting the causes of death through defective respiration, to the mechanical organs heart and lungs by which the function is so mainly carried on. Upon these organs as such, enough has been said. It is necessary now to look to the true respiratory organs, the blood vesicles, or the blood itself; and shew—

1st. In deviations from its healthy condition, rendering it unfit to be acted upon by the air—and

2d. In an unhealthy condition of the air, rendering it unfit to act properly upon the blood :—the real cause of some other forms of asphyxia and of death. But it must be premised that the property of respiration is only *one* of a series of vital phenomena exhibited by the blood, and if these other be lost or impaired, its respiratory property will suffer too, being in fact dependent upon them for its very existence. If these be really indispensible considerations, (as I believe them to be, to a right understanding of respiration in all its bearings upon disease,) if we must consider in addition to the necessary mechanical moving powers;—the part moved, the blood;—the design aimed at, its exposure to pure air; the sequences, motion, secretion, nutrition and animal heat :—if all these *must* form the basis of our reasoning, and it is now a century ago since HUXHAM* insisted upon it as indispensible: then shall we find ourselves, with him, obliged to include in observations upon impeded respiration, disordered circulation, suppressed even diminished secretion, deterioration of fluids, loss of nervous power (generated by oxygen combining with the nervous substance,) consequent languor of mind and body, in fine FEVERS, and perhaps CHOLERA or even COLIC.

This is a vast subject, but if we only grasp right principles at the outset they may carry us through it. All vital phenomena appear to be wholly referrible to properties inherent in organized structures; so long as the composition and the organization remain unimpaired, and the requisite stimuli, or proper conditions of action be supplied, they can manifest themselves; but will fail whenever propriety either in structure or stimulus be wanting. If this be true, it should apply to the blood. We must therefore, when we find the blood failing in this particular vital action, a respiratory capacity, search for the cause either, 1st. in some injury to its organization and constitution; or 2dly. in loss of the requisite normal stimuli, or 3dly. and this is more common, in both combined. For neither disease nor death can take place without causes.

"But it has been maintained by those who consider Vitality as something superadded to an Organized Structure, essentially independent of it, and capable of being subtracted from it, that Death frequently takes place under circumstances, which leave the organism as it was; so that " the dead body may have all the organization it ever had whilst alive." For such an assumption, there is not the least foundation. In nearly all cases in which death takes place as a result of disease, the connexion between changes of structure and composition, either in the tissues or in the blood, and such a loss of the vital properties of some part or organ as is sufficient. to bring the circulation to a stand, is so palpable as to require no proof; and in by far the greater majority of cases in which it is not at once obvious, a more careful scrutiny will reveal it. It must be confessed on both sides, that our means of investigation, and our knowledge of the normal structure and composition of the tissues and the blood, are not yet sufficient to enable us to detect minute shades of alteration, nor to assert what extent of change is inconsistent with the continuance of life."*

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* Secundò; contrà omninò contrarias Corporis Affectiones infert Aër debitæ Gravitatis & *Elasticiatis* expers: nam sequitur inde tardior Sanguinis *Circulatio*. diminutæ Secretiones, impedita *Perspiratio*, Lentorque tandem nimius humorum. Hinc ille Corporis & Animi Languor, quo ferè afficimur omnes, dum talis adest *Atmosphæræ* Constitutio; quæ porrò, persistens usque, ista omnia auget indies: imò vel ipsa mala, Causæ originali succedentia, se mutuo promovent assiduè: demumque his omnibus accedunt Affectus *hysterici & hypochondriaci*, Febres intermittentes, remittentes, putridæ, lentæ, *nervosæ petehciales*; Morbi denique omnes à nimio Lentore Sanguinis & segni ejus Circuitu pendentes. OBS. DE AERE auct. J. HUXHAM. Londini Edit. 2da, 1752. *Prolegomena* p. x

But the broader shades of alteration from health, are even in the blood sufficiently obvious, and when understood, are capable of leading us to account rationally for failure of its vital properties or obstruction to their manifestation. In the healthy condition of blood there is a mutual propriety of relation between its constituent parts, the plasma and the blood cells, or vesicles floating in that plasma ; and this is true, both of its arterial condition having absorbed oxygen to convey to remote parts, as well as of its venous condition charged with the carbonic acid which the vesicles have acquired in their course and in exchange for oxygen. But this propriety and mutual relation is often lost. In the inflammatory condition of the blood, for instance, the amount of fibrine is notoriously increased, and it is then, in proportion to the degree in which that increase may have taken place, impaired as to its respiratory capacity. The blood vesicles are not however useless, they are yet capable of being acted upon by oxygen. Still they are not in a proper and normal state, but in a state which is frequently seen in ardent fevers, in congestion of the arterial capillaries.† But this impaired capacity of blood for respiration in the lungs will be coincident with, or will induce other forms of impaired vital manifestation. Thus *secretion* in the systemic capillaries is found to be impaired ; the blood will neither give out nor take back the products which it should do ; the *motion* in the systemic capillaries, being in great part dependent upon those mutual interchanges between the blood and tissues which constitute secretion, excretion and nutrition, the *motion* I say will be impeded in these systemic capillaries, and congestion take place, or be increased if begun ; whilst the blood when it again returns back to the heart and lungs, is still more vitiated, and more or less loaded with foreign matters which ought to have been excreted. Owing to previously existing congestion the capillary channels by which it should get on to the other side of the heart are found diminished, and straightened, and the blood is therefore still more likely to be delayed and congested in them and this loss of active motion, is itself a further *hindrance to vital endosmotic action.* Hitherto we have only considered the *vis a tergo,* the heart's propelling power as the grand moving principle for the blood, but it is not the only power. The *vis a fronte,* caused by the healthy activity of secretion generally including respiration, is not less necessary in man than in a tree. Stop at once all the secretion in the leaves of a plant and there will be no rise of sap through the roots ; in like manner stop all secretion either in the systemic or pulmonic capillaries or both, and the motion of blood in those capillaries will be obstructed thereby, and will require the heart to beat with increased force and frequency to overcome it.

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* Manual of Physiology, W. B. CARPENTER London, 1846.

† One must rather imagine a distinction between arterial and venous capillaries in the lungs than profess to be able to *see it.*

We have here assembled all the main conditions which may constitute common fever. It may be illustrated by an example.

Thus, an infant sleeping under a punkah, the thermometer about 90. the air loaded with moisture like a vapor bath around it, the punkah-man goes to sleep. The infants skin is soon wet all over with profuse perspiration, and the child exhausted thereby, is more apt for receiving injurious impressions. The man awakes, he *winnows* away at the sleeping infant. The child is chilled at every pore, and all secretion stops. The skin is hot and dry, blood moves languidly through the systemic capillaries, now no longer active by secretion. The pulmonic capillaries sympathize, the endosmotic action, (for transfer of gasses in the lungs is such an action) is weaker, the blood becomes more and more vitiated. The mechanical aid of quick respiration and quick pulseis now set up to force it onwards, and at day light a high degree of fever and *râle crèpitant,* calls for the most watchful care of the practitioner, or the infant is lost ; as occurred to a poor lady only two days ago.

Here then is a common enough instance of a state of things by which the blood will become loaded with fibrine, and otherwise vitiated, and its organization injured, its normal stimuli—secretion, excretion, nutrition lost, and its respiratory capability also. That arrest of secretion, and vitiation of the blood in the systemic capillaries, here slowly effected by the sudden application of cold to the perspiring surface of a warm blooded animal, an infant, can be effected more quickly by the sudden application of heat to a cold blooded animal.

If a frog be rendered insensible, by being plunged in hot water, so that all motion in the limbs be lost, the heart's action and respiration will yet continue most actively for hours. If the lung be then drawn out, and placed under the field of the microscope, and high power be employed, so rapid at first is seen the circulation of the blood vesicles through the pulmonic capillaries that the sight is dazzled as it were. On they fly, glancing like motes in a sunbeam—one, continuous sparkling cloud.* By and bye this motion is slower; we see in the greater vessels crowds or clouds of minute corpuscles like dust ; we see in the true capillaries files only moving slowly onward, or right, or left, and even retrograde at points, but still onward : at length they stop. In the great vessels they yet move slowly onward, the heart still beats, the lung still swells by inspiration, but the capillaries in that dense brilliant lacework, wherever you examine it, whether in the smallest air cells, or in the ample area of the larger cells, all is motionless and still ; and now the bright vermilion hue is lost, and the lung is generally purple. But why is this ? what is it ? congestion, but as far as respiration is concerned it is death. This death appears to commence in the systemic capillaries and thence it is propagated to the lungs. The very reverse of the state we considered in all the facts and preparations adduced in the preceding pages.

But other deviations from the conditions essential to proper vital actions of the blood, and to this of respiration; conditions, the very opposite of those last alluded to, may yet cause asphyxia and death. The blood cannot breathe if its proper vesicles be wanting, and they may be so. For instance in spleen disease, in chlorosis, &c. how great the *besoin de respirer*, but how few the carriers of oxygen. Again the blood I have seen after continued hemorrhages not more deeply colored than serum, not having its real colour at all (see p. 295) mere chylous fluid, yet stimulating the lungs to inflamation.

In spleen diseases the lungs are found after death perfectly blanched. All the red blood vesicles seem to have accumulated in the spleen itself. By a strange perversion, it seems to be that plasma only is circulating, whilst the spleen retains all the red vesicles. It has thus enlarged until it fills half the abdomen. The heart, lungs and other organs are embarrassed in their proper functions by dropsical effusions, into the cavities, and in the cellular tissue ; being serous, watery filtrations, from what can hardly be called blood, so pale and altered from its proper condition. This mere make-shift *circulating medium*, is not fit, not in a condition to be acted upon by oxygen, for the vesicles, the carriers of oxygen to all parts of the body, are so few and far between. The distant parts can no longer participate in the necessary changes which are effected by healthy respiration—*i. e.* elimination, circulation, nutrition, nervous regeneration and animal heat. These are universally impaired, in some parts lost : the blood coagulates, and then gangrene ensues.

I have now considered some kinds of deviation from the healthy condition and organization of the blood. In one it is seen to have been deficient in blood vesicles, and to have had the plasma too watery ; hence it could not imbibe its proper proportion of oxygen ; in other words could not properly breathe. In the other it is probably too much loaded with vesicles ; certainly too much loaded with fibrine, and foreign matters ; could not therefore move readily, nor properly breathe. In a third, the vesicles (after hemorrhage) were probably imperfect, immature, hence incapable. These two first abnormal states of the blood are readily seen by drawing a portion out of the body and letting it stand in a vessel. The solid part will be very great in one case ; and very little relatively to the mass withdrawn in the other case. But these are extreme examples ; various intermediate, mixed conditions of the blood obtain. The fibrine may attain various degrees of deterioration, and be found *plastic*, *cacoplastic*, or *aplastic*. Or the plasma generally may become more and more vitiated by matters which should have been excreted, and by various salt. The corpuscles may I believe even burst, and resolve into their constituent elements ; as in Typhus. These conditions will be attended by such modifications of vital action as we meet with in practice, and recognize as diseases. For the organs in which congestion *had* taken place, may now that endosmotic or vital action can no longer proceed, suffer by the mechanical filtrations from this vitiated blood contained in the capillaries, or from the disorganized blood itself. Thus, as respects the lungs, we may have pus, serum, or fibrine effused ; either in the general cavity of the chest, or more commonly in the air cells and passages, and the pulmonic fabric around them ; and thus constituting the diseases already considered, serous or fibrinous dropsies of the pericardium and chest, or pneumonia, bronchitis, or various forms of tuberculosis, or the partial hemorrhages of typhus and scurvy which are now to engage our attention.

“ Again, the due elaboration of the fibrine of the blood is undoubtedly prevented by an habitually-deficient respiration ; and various diseases, which result from the imperfect performance of this elaboration, consequently manifest themselves. The *Scrofulous* diathesis is thus frequently connected with an unusually small capacity of the chest.” Whenever the capillaries of the lungs are filled by blood mixed with tubercular matter, respiration must be imperfect, and so on with any other circulating medium put in the place of blood.

"Now when, from any of these causes, the free exchange of carbonic acid for oxygen in the pulmonary capillaries is checked, the first effect of the interruption appears to be, the stagnation of the blood in the pulmonary capillaries. This stagnation is evidently due, not to any deficiency of power in the heart; for that organ is not yet affected; but to the insufficiency of the heart's power, acting alone, to drive the blood through the pulmonary capillaries; the force which should be generated by chemical changes in them (§ 598), being deficient. The stagnation is not however, complete at first; since the quantity of oxygen contained in the lungs is sufficient to produce an imperfect arterialization of the blood; and the blood thus partially changed is transmitted to the left side of the heart, and is thence propelled to the system. Owing to its half-venous condition, it cannot exert its usual stimulating influence on the tissues, especially the muscular and nervous; and their powers are consequently weakened. For the same reason, it does not receive its usual auxiliary force in the systemic capillaries (§ 599); since the changes, which it ought to undergo in them, can only be partially performed.

"As the air included in the lungs loses more and more of its oxygen, and is more and more charged with carbonic acid, the æration of the blood in the pulmonary capillaries becomes more and more imperfect; the quantity of blood which is allowed to return to the heart is gradually diminished, and its condition becomes more and more venous; and at last, the pulmonary circulation is altogether suspended."*

Congestion of the lungs if general is the most perilous condition of disease—for it brings all the vital actions to a stand at once. In this respect therefore it is infinitely more dangerous than congestion of any other organ *whatever.* This will be seen to produce instant death in *coup de soleil*, and rapid death in cholera.

"Further an habitual deficiency of respiration may impede, though it does not check the circulation in the lungs; and thus a tendency arises, in various pulmonary diseases, to an overloading of the pulmonary arteries, to a dilaation of the right cavities of the heart, and to a congestion of the venous system in general, as marked by lividity of the surface, by venous pulsation, &c. This state may result, not merely from obstruction in the lungs themselves, but from *deficiency of the respiratory movements, consequent upon torpidity of the medulla oblongata* (as in apoplexy and narotic poisoning), or upon partial interruption of the nervous circle requisite for all reflex movements. Thus when the par vagum is divided, the number of respiratory movements is greatly diminished, and a partial stagnation of the blood in the lungs is the result *coup de soleil.* The same happens in certain forms of typhoid fever, in which the respiratory movements are preternaturally slow, in consequence of torpidity of the medulla oblongata. Now in this state, an effusion of the watery part of the blood into the air-cells of the lungs (as in other cases of obstructed circulation) is very liable to occur; and when the lungs are thus loaded with fluid, the respiratory process is still more impeded, and the disorder has thus a tendency to increase itself.†"

But it is more common in INDIA to meet with examples of both these states combined in fevers,—viz. congestions and compression of the pulmonary capillaries and cells—with congestion and compression of medulla oblongata and spinal cord.

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* Manual of Physiology by W. CARPENTER M. D. London 1846 p. 403

† Op. Cit. p. 405.

THE LUNGS CONGESTED IN BENGAL FEVER.

By W. Craddock, Esq. Assistant Surgeon Artillery, Dum-Dum.

Gunner Benjamin Burrell, 3rd Company 2nd Battalion æt. 20. re-admitted, 3rd July 1845. Complaining of pain in the head, has had a rigor previous to admission, followed by the hot stage, is now cool. Pulse small and irregular, tongue foul, bowels confined.

℞ Calomel. gr. v. Ex. Coloc. Co. gr. viii. ft. pil. ii. s. s. post 2 horis. Jalapæ Co. ʒj.

Reptr. Pil. Cal. c. Coloc. Hirud. xviii. Ht. Salinæ. Ant. 2da. q. q h.

Vesp.—Is a little warm to-night, has pain across the fore-head, bowels opened three times.

4th.

Rept. Jalapæ Co. ʒj. Rept. Ht. Salinæ.

Restless night, bowels open, head relieved, is now cool.

℞ Cal. gr x. Pulv. Ant. gr. iv. ft. pil. ii. h.s. ℞ Liq. Ammon. Acet. ʒiii. Spt. Ether nit. Vin. ant. tart. a a *m*.xv. ft. Haust 3ta. q. q. hora. Abdo. foment.

Vesp.—Has been warm all day, says bowels have been 20 *times* moved, stools bilious and scanty, complaining of pain over some part of abdomen, head free from pain, skin cool, pulse 120, and without power.

5th.

Emp. Lyttæ. nuchæ. ℞ Calomel gr. iii. Pulv. Ant. gr. iii. ft. Pil 3tia q. q. hora. s. Rep. remedia.

Has slept better, bowels 4 times moved, stools bilious, abdominal pain better, pulse 120 and soft, face flushed but is cool.

Vesp.—Has been cool all day is now free from fever and pain has left abdomen; tongue moist and cleaning, bowels opened seven times.

6th.

℞ Ol. Ricini ℥j Stat., Rept. Pil. et Haust. Emplast. Lyttæ scrob. FotusCalid abd. Repr. Ht. Salinæ et Pil. Lotio frigid. capiti.

Has passed a restless night, mouth getting sore, is now cool, pulse 120 and weak, complains of soreness over abdomen, and sickness of stomach, bowels open in the night, stools bilious, tongue moist.

Vesp.—Has been cool all day but troubled, with strangury from the blister, bowels open several times. Pulse *quick and weak*, tongue moist and cleaning.

7th.

℞ Quinin. Sulph. gr. ii. Acid. Sulph. Dil. ♏ vi. Mist. Camphor. ℥ss. ft. Ht. 3 q. q. hora. Rept. Pil Calomel ter. die.

Did not sleep well, bowels freely opened, tongue the same, pulse weak, and he is cool and moist or rather clammy; has a more steady pulse and natural skin since the chicken broth.

Rep. Pil et Haust Salin Simpl.

Vesp—Has been easier and feels better, is still very weak, no stool, a little uneasiness in abdomen.

8th.

Rep. Ht. Salinæ sine. Ant. Tart. Rep. Pil. Calomel et Lotio frigid. capiti. Mercurial inunction.

Tongue dry, pulse very quick and weak, he is a little warm, bowels open once, pain in abdomen much diminished, mouth not so sore.

11½ P. M.

In a partial state of collapse with cold perspiration is very uneasy and restless, has heat of skin. He gardually become more collapsed. Died at ½ past 1 o'clock.

Appearances 16 *hours after death.*

Body.—But little reduced.

Head.—Cerebral membranes particularly the pia mater much congested, and a little limpid fluid in the lateral ventricles.

Chest.—Lungs congested but healthy in other respects, heart healthy and its right side also filled with highly carbonized blood.

Abdomen.—The liver and spleen both congested, the latter softer than natural, and both in other respects healthy. Gall bladder two-thirds filled with dark bile. The mucous surface of alimentary canal shewed signs of general congestion which varied in degree. The portal circle of vessels was also congested.

Remarks.—This man apparently sunk from collapse, the effect of great internal congestion, and which is so common, at Dum-Dum, since the rains set in. The greater portion of the blood was, as it were, in the venous system, and almost out of the circulation, while the little that was circulated in the arterial system could scarcely be decarbonized from the congested state of the lungs. Hence the irregular and quick respiration, and the quick weak and flickering pulse the half-filled artery afforded to the finger.

But real Typhus which is also met with in INDIA presents the most frequent examples, of the mutual influence of congestion of the lungs and air passages, and congestion and compression of the spinal cord.

CONGESTION OF THE LUNGS—COMPRESSION AND CONGESTION OF THE SPINAL CORD IN INDIAN TYPHUS FEVER.

By Allan Webb, Esq.

Mow, a Puharree, caste Kunât, age 26 years, admitted by the Native Doctor in the Subathoo hospital with what he supposed to be the prevalent typhoid fever.

29th August. Cal. et Ant. P. ā gr. v. P. Jalap. Co. ʒj. m. s.	Hot skin, quick pulse, tongue white and dry, pain and hardness of belly, eyes yellow, no stool.
30th. Castor Oil ℥i.	Same state, no stool.
Augt. 31st. 7 A. M. Croton Pil ij.	Same state, no stool, vomiting.
8 A. M. Tart. Emetic solution	Admitted into the Simlah Hospital* vomiting, insensible, most violent spasms, of all the limbs, head and neck turgid with blood.
12 A. M. Colic. Enema. Ojj.	Seen again writhing in convulsions on the floor, with dark grumous blood, like coffee grounds, issuing from his mouth, hands are bound, pain in bowels is evident.
7 P. M. V. S. Ad. ℥ xvi. Repet Enema.	Lying in profound stupor, rolling of eyes, stertorous breathing, occasionally vomiting. Head and neck excessively congested, limbs relaxed.
12 P. M.	Died.

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* The Simlah hospital and dispensary like many others, with the same benevolent objects in view, has arisen since I last visited Upper India, and owes its foundation to the Earl of Auckland. The advantages of these Institutions any where, are unquestionably great; but here, the more eminently so, as the poor Puharries are utterly destitute of the light of medical science, not even pretending to that uncertain glimmer, which the Beds in Hindostan are said to enjoy. Some of these poor people came in fifteen days march to the Simlah hospital. Whilst travelling in the interior of the hills, with the Lord Bishop, in 1836, I have had them follow us for four or five marches, for medical advice. The Simlah dispensary also affords relief to Cashmeries, Tartars from Ladak, and strangers from the plains.

Post Mortem Examination, in presence of Capt. Rainey and Kutwal.

Head.—Integuments much congested, bleeding freely on being cut. The divided bones bled profusely from the cancellated structure. Effusion of bloody serum and lymph between the skull and dura mater. Sinuses, and veins leading to them gorged with blood. Effusion of bloody serum between arachnoid and pia mater. The latter much congested, so as to give to the surface of the brain, a deep red or bloody hue. Effusion of serum into ventricles, cineritious substance generally softened, white portion oozing out spots of blood plentifully, on being sliced: left lateral lobe softened anteriorly. *Spinal cord compressed from serous effusion, great quantities of dark blood oozing from the divided veins of the spinal cord.*

Chest.—*The lungs did not collapse* at all on this cavity being opened; They were of a fine indigo tint generally, mottled with black; posteriorly so much congested as to appear like clotted blood on being sliced, an intense brick red colour of the tracheal and bronchial lining. Near its bifurcation were rough patches, from whence I conclude the bloody discharge from mouth had proceeded.

Heart.—Right side gorged with black blood. Extensive patches of effused blood were seen in the loose tissue behind the trachea, and also behind thoracic aorta, on each side of the spine also.

Abdomen.—Stomach and intestines presented a perfectly healthy appearance, echimosis in the mesentery at various points. *Liver* and *Spleen* quite healthy. *Colon* distended with air, had a glove-like prolongation. Bladder healthy.

General appearances.—A peculiar red tint of fat under the integuments of neck, chest, and abdomen.

Deduction.—The echimosed, state of brain and effused patches near the spine, red tint of fat might be caused by hanging up by the legs. Some of the hill men (Puharree's) were brought in, accused of having hung him up by the legs to a tree. But of this, there was no evidence. I never saw it cause any disease. General congestion and effusion on brain accounts for insensibility. Compression of spinal cord by congestion of rachidian veins and effusion into spinal canal, accounts for spasm. Rough patches in the inflamed bronchial membrane had furnished the blood from mouth. The fever he suffered might be idiopathic, or reaction from the ill treatment, and was fatal. *It is in the total suppression of all secretions very like the prevalent Hill colic.*

BRONCHITIS, CONGESTION OF LUNGS IN INDIAN TYPHUS FEVER.

By Allan Webb, Esq.

Sept. 11, 1841.—Ackloo, a Puharree cooly, aged 24, admitted; has had disease 8 days. Is almost insensible; has a sort of drunken expression of face; coughed up blood; at least a good deal has come from his mouth; is spotted all over with petechiæ. Pulse thready 100; respiration 17; chest sounds dull on percussion; has ulcerated buboes in both groins.

Treatment (in Simlah Hospital.)

Sinapisms—Mist. camph. and ether—Calomel and plv. antim.—Brandy—Turpentine enema—Died same day in evening.

Autopsy.

Head.—Arachnoid blistered all over from effusion underneath it. Medullary portion of brain thickly studded with bloody points, softened in some places.

Chest.—The lungs congested with blood at the posterior part, otherwise healthy ; considerable œdema of the epiglottis. The bronchial lining membrane of a brick red color, deepening as it approached the bifurcation into the bronchi, which were stuffed with sputa. Heart spotted outside with echimosis ;* right auricle and veins leading to it gorged with black blood, and fibrinous coagula, *Stomach* and *small intestines* spotted with blood effused between the muscular and mucous coats. The latter, or mucous membrane, coated with thick mucous ; veins of abdomen gorged with black blood ; *large intestines* healthy. *Mesentery* loaded with fat. *Liver* healthy in its structure ; congested with blood ; enlarged. *Spleen* enlarged to four times the usual size, and breaking under pressure of the finger, like a clot of blood ; bladder shewed echimosed spots beneath its mucous coat.

General Appearance.—That of fine health ; muscles well developed ; limbs and trunk rounded with fat ; buboes in groin and axilla.

COMPRESSION OF BRAIN FROM FILTRATION IN TYPHUS.†

By Allan Webb, Esquire.

Chungoo, also a Hill cooly, came in with his brother, recorded in the last case, on the same day, August 11th ; had the disease only six days, and is not so bad as the other. The petechiæ are abundant all over the skin.

℞ Calomel ℈ss. Jalap gr. xii. Ant. Tart gr. ¼.	Six stools in the night ; belly soft. (Was ordered by Native Dr.)
13th.	Heard of his brother's death, and began to fall off from this day.
Morning 15th. Leeches viii. to the abdomen—Ol Ricini ℥j, Tinc. opii. m. xx.	Takes no notice ; passes bloody stools ; refuses food ; delirium and hiccup ; has slight cough and fulness under the ribs ; pain on pressure ; pulse weak ; skin bathed in perspiration.
Evening. Port Wine.	No better ; lies with knees drawn up ; his body sunk down in the bed ; surface coldish.
Morning 16th. Blister to nape—Head to be shaved—Sinapisms to the abdomen.	No delirium ; coldness and hiccup relieved by the mustard poultice and blister. Has loose cough ; lungs admit air freely ; spots of echimosis less evident.
17th. ℞ Calomel, gr. iii. Rhœi. pul. g. vi. Camphor gr. iij. "now"	Delirious all night ; slipping down in bed ; tongue brown ; skin cold ; pulse weak ; has bloody stools.
Evening.	Another stool, bloody and black after injection of Ol. Terebinth and Ol. Ricini.

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* In the museum, we have a preparation No. 1523, of a heart thickly studded with the pustules of small-pox both on the Pericardium and the Endocardium and upon the aortic lining.

† These cases are taken from a paper which I published in 1842, in the VIII. vol. of transactions of Med. Phys. Soc. Calcutta p. 274 entitled "Observations on the diseases and climate of the Hymalayan Hill station, &c."

18th. ℞ Camphor gr. v. Opii. gr. ii. 'now'—Ol. Ricini ℥i. at 12 o'clock	Worse; delirious all night; teeth covered with brown sordes; tongue brown; skin cold; pulse barely perceptible; one bloody stool in the night; lies with knees drawn up, and is roused with difficulty.
Evening. Port Wine.	Same state; more sunk in bed.
18th.	In the evening, he died.

AUTOPSY.

General Appearance.—Body very little emaciated; skin spotted with petechiæ; one large echimosis on the conjunctiva of eye.

Head.—Some large echimosed spots appeared between the scalp and pericranium; a considerable quantity of water flowed from a wound in the dura mater, made with the saw. The arachnoid appeared to be blistered all over from the copious effusion between it and the pia mater; membrane not opaque nor thickened; more copious bleeding than I ever saw before, from the white substance of the brain, upon slicing it. This medullary portion also was much softened. In one place especially, situated in the anterior portion of the left hemisphere, this spot was soft as custard. There was also considerable effusion into the ventricles.

Chest.—Appeared quite healthy. There were however some echimosed spots on the surface of the lungs and pleura, and larger spots of black color, on the posterior aspect of the lungs. The lining membrane of the trachea, larynx and bronchi was pale, in this respect, offering a strong contrast with the case last recorded. Heart had its right side, and all its large veins, gorged with black blood. Blood also had infiltrated like a large echimosis in the cellular tissue behind the aorta. The esophagus presented a large red surface, where the lining membrane had been raised from blood effused underneath. One portion about two inches long, presented a rough appearance of blood coagulated upon a sort of papillæ, which I suppose to be the mouths of exhalent vessels that had given way. It was rough and raised, not eroded nor depressed like an ulcer.

Abdomen.—The peritoneum shewed numerous echimosed spots. The stomach also had its lining membrane thus raised, by small bloody echimosis beneath; small intestines had their mucous coat softened. The echimosed spots were nearer together, especially on approaching the cœcum. The lower portion of the ilium was filled with grumous blood. The mucous membrane softened, easily scraped off; in no place eroded, but shewing very adherent coagula upon the more prominent echimosis. The colon throughout nearly its whole extent shewed the lining membrane raised by echimosis, with black coagula or clots, so adherent, as not to be removed by sponging; requiring to be scraped off; mucous coat softened; all the coats thickened. *Liver* rather soft; *Spleen* healthy.

Pelvis.—*Bladder* empty; great veins filled with black blood; all the tissues of the body softened. Muscles easily lacerated.*

Now here we have unquestionable examples of the worst forms of petechial fever; the putrid fever of old writers. The tendency of the blood to exude, from nearly all the surfaces, both internal and external, is very remarkable. Hæmorrhage in the former case took place by exudation from the bronchial mucous lining, in this, form the membrane lining the bowels, and also from the esophagus ; the blood from thence having passed downwards. The alteration in the blood itself is also very remarkable. It is incapable of vital actions, incapable of respiration in the body, and of coagulation out of the body, and its blood corpuscles, the carriers of oxygen, are most likely disorganized ; as described by Huxham.

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* You will hardly be surprised at these poor people Puharrees, inhabiting the lower range of the Hymalaya Mountains, being subject to this disease. They fare very hard, their food being the coarsest grain and barley; they labor chiefly in

"Though I am persuaded, the above-mentioned Hæmorrhages most comly arise from an *acrimonious state of the humors*, which breaks the *crasis of the blood*, and corrodes the extremities of the capillary arteries; yet they sometimes also happen from a too loose contexture of the blood-globules, not sufficiently compacted by the action of the Heart, arteries &c. for want of which they become *oblate Spheroids*, or irregularly formed *Moleculæ*, instead of *regular spheres*, and of course of a greater diameter, and a less firm *Compages* than natural.—But it appears from microscopical observations (especially those made with the *Solar Microscope*) that the blood globules, in passing through the minutest ramifications of the sanguineous arteries, change their globular, into a very oblong figure frequently, in order to pass through these exceeding small vessels."[*] And it is easy to conceive how these loosely cohering globules, ("a structure consisting of envelope, nucleus, and red matter.") may be broken in their passage, as the enlarged bulk makes their *transit* more difficult.——Now as these broken parts are of much lesser diameter than the original globules, they may readily enter, and even pass through some of the excretory ducts, and transude *per Diapedesin*, (filtration, through the coats) as the Ancients called it.—That this is so in fact seems to appear from the bloody urine, stools, and other hæmorrhages, which sometimes happen without any manner of pain, violence of motion, or the least suspicion of the rupture of any vessels :—nay, I have more than once or twice seen in malignant fevers, and that too where the motion of the blood was far from being very rapid a kind of[†] bloody sweat from the *Axillæ*, tinging the linen almost of a *Burgundy* wine colour.—And it is

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carrying loads up and down these steep hills; their only clothing night and day is a coarse black blanket; and they are sometimes whole days exposed to the rain. Their huts are miserable hovels, in which they can hardly stand upright. To these evils is vainly opposed their custom of hardening their children, and rendering the brain less susceptible (they say) of the sun's power, by making them, when young, sleep with a stream of water directed against the back of the head. I have seen one woman, attend a dozen of these sleeping infants, of all ages, from a month old to five or six years ; and pieces of bamboo are employed to divert the mountain stream from its course, and to direct it upon the sleepers. In a valley below Simlah, this may be seen daily. Another great evil, which shuts them out greatly from social comfort during sickness, and loosens all the dearest bonds of domestic life, is their system of Polyandry. One woman has from half a dozen, to a dozen husbands. Hence worse evils result, than from the opposite error of the Mohamedans in the plains, from this violation of the original law of marriage. It must be manifest that the tie between parent and child is here unknown, and sympathy in suffering is found to be very rare.

[*] The corpuscles alter their shape on the slightest pressure as is beautifully seen while they move within the vessels." Elements of Anat. 5th Edit. Jones' Quain London, 1843.

[†] *Dr.* Hodges, *of the Plague observed purple sweats in it and some like blood*

observable, that when this sort of Hæmorrhages happens from the nose, the matter is a thin *bloody Ichor*, not concreting, as blood commonly doth from the nose of persons in health, or in an inflammatory Fever, which is generally very thick, shining and florid : Some *chlorotic Girls* are vastly apt to bleed from the nose, and yet their blood doth but just colour a linen cloth.—The *Petechiæ*, *Vibices*, or livid *Stigmata*, that very often attend these Hæmorrhages, shew that the Blood-globules are dissolved, or broken down, and enter into the serous arteries, *Vasa exhalantia* &c. where sticking fast, they form these appearances.—And I have particularly noted, in some putrid, malignant Fevers, a kind of yellow, or rather dun *Petechiæ** vastly numerous, and of not less fatal omen than the others : Here the Blood-globules were broken into such small particles, as to have quite lost their orginal colour when combined. Perhaps the fuliginous sweats, and dark coloured, or black urine with a livid sediment, which sometimes happen in Fevers of the malignant kind, arise from a broken corrupted state of the Blood-globules: I have seen several times the urine rendered almost quite black, depositing an immense quantity of matter nearly of the colour of *Coffee-grounds*.—And we are sometimes surprized to see the face and hands of the sick grow *dirty* and *sooty*, as it were, though all imaginable care was taken to keep them clean."—*Huxham.*

This disorganization of the blood corpuscles, which destroys their respiratory function, has been proved by the microscopical observations of VOGEL.

PUTRID TYPHUS FEVER—DISORGANIZATION OF BLOOD CORPUSCLES, GANGRENE

" Walburga S. Aged 27 years, a servant, entered the Munich Hospital on the 23rd of May, 1840. She had felt unwell for several days, and on admission had severe fever, diarrhœa, congestion of the head and chest, and difficult respiration. In a few days she presented a well-marked case of typhus ; the lungs were considerably affected, there was tumefaction of the parotid glands, and on the 3rd of June she died. Shortly before death both arms became gangrenous, the right originating from a venesection-wound made at an early stage of the disease, and the left without any apparent cause.

An examination made twenty-four hours after death yielded the following results :—The examination of the contents of the cranium presented nothing abnormal. The left parotid was inflamed ; its tissue appeared of a violet colour, with minute ecchymoses. From this inflamed tissue, minute masses could be expressed, (the size of pin's head or less,) of a yellowish white colour, soft and semi-fluid. These appeared to be pus, but when examined under the microscope, exhibited no trace of pus-corpuscles, and appeared to be only the blastema for the formation of pus ; they were amorphous, but contained fat-globules and minute granules (margarin) together with a few epithelial cells from the salivary ducts. On the addition of acetic acid the amorphous mass instantly disappeared ; nothing remaining but the nuclei which resembled those of pus-corpuscles.

The lower lobes of the lungs were infiltrated with bloody serum ; the bronchi were reddened and filled with a frothy fluid. The mucous membrane of the stomach was soft and easily pulled off ; at the lower part of the small intestines there were several *plaques* and small ulcers. The mesenteric glands were slightly enlarged. There was gangrene in both arms.

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* *Vid. Obs. nostr. de Aere & Morb. Epidem. Vol. I. Anno* 1735, *Mart. & Aprili* ; & *Vol. II. Anno* 1740, *Junio.*

On the left side, from the back of the hand to four inches above the bend of the arm, the subcutaneous cellular tissue was reddened. This redness penetrated to the bone and was associated with serous infiltration of the tissues. The muscles were also changed, being soft, viscid, and easily torn.

Muscular tissue from the middle of the fore-arm was examined under the microscope. It was of a grayish red colour, and very soft. The primitive fibres of the muscles retained their normal form, but they were very pale, transparent, gelatinous, and *without any trace of their normal transverse striæ*. The cellular tissue, however, still retained its normal relations, showing the usual curved fibrous bundles. Between the muscles and the cellular tissue there were numerous fat-globules. *There was no trace of blood corpuscles; they appeared to be wholly dissolved.**

The same relation was exhibited by parts from other muscles of the fore-arm. The primitive fibres were pale, gelatinous, and without any trace of being striated, but the cellular tissue was normal. *The blood-corpuscles*

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* "*A too lax state* of the veffels, and too *losely compacted blood-globules*; which is the case very commonly in petechial Fevers, especially such as are attended with hæmorrhages." *Huxham* gives the following singular case of

DISORGANIZATION OF BLOOD.

"I here beg leave to give the history of such an one, which I think was the severest, that ever any person suffered under, who survived the disease:—And the rather, as I shall specify the method of his cure; which not only in his case, but in several others of the like nature, tho' not degree, I have experienced to be highly beneficial; and which, I am persuaded, is the only successful course that can be used in them, however different it may seem from the common practice.

An eminent Surgeon of a neighbouring town, of a thin and somewhat tender constitution, but constantly used to action and exercise, and frequently subject to fevers, and scorbutic rheumatisms, from taking cold, &c. in *October* 1741, fell into a kind of slow fever, attended with flight rigors, frequent flushes of heat, a quick weak pulse, loss of strength and appetite, with a great load at his breast, and a heavy sort of respiration.—Notwithstanding this, he continued in his business, constantly riding, and fatiguing himself for some four or five days after this seizure.—I met him at a gentlemen's house, who was my patient; and finding him as above, and that *his breath was, even then very offensive*, I earnestly desired him to take timely and due care of himself.—Two days after, he, being at a gentleman's in the neighbourhood, was taken all on a sudden with a very great faintness, and fell off his chair: upon lifting him up the company observed several livid and violet-coloured spots on his arms and neck. It was with very great difficulty they got him home, though but two or three miles distance, he very frequently fainted by the way.—The disorder encreased every moment, he had a vast langour with pain and extreme oppression on th[illegible]ræcordia, and a perpetual sighing;—*his breath now stank abominably* and a fœtid bloody matter leaked continully from his gums, and thousands of livid violet and black spots appeared all over his body, on the trunk, as well as the limbs.

He was bled to about ℥xii from his arm, but this gave him no manner of relief, the oppression, sighing, fainting, and anxiety continuing as bad as ever, nay rather encreasing;—a violent hæmorrhage also broke forth from his nose; which continuing from both nostrils, he was bled again to ℥x about twelve hours after the former bleeding:—neither did this give him any relief; but encreased his weakness considerably, and he continued as anxious, restless, and oppressed as ever, without even the least sleep. The blood now not only issued from his gums and nose but he also coughed up blood.—Indeed the bleeding from his nose had ceased somewhat, but it encreased from his gums, and in a surprising manner. Blood now likewise dropped, though slowly, from the caruncle of one of his eyes; and several livid pustules on his tongue, and withinside his lips, broke and discharged a bloody thin matter very copiously.

The hæmorrhage being somewhat restrained, a bloody dysentery came on with severe gripes, and excessive faintness, and he was still exceedingly restless and very feverish: his pulse now intermitted, every sixth or eighth pulsation, and then fluttered on again vastly *had everywhere disappeared,* while the fluid which saturated the whole of the tissue was of an uniform red colour.

On the right arm the subcutaneous tissue was also inflamed, especially in the vicinity of the wound previously mentioned ; showing very considerable and numerous ecchymoses and incipient gangrene. The muscles were somewhat less soft, and less easily torn than in the left arm.

In the adipose cellular tissue, infiltrated with blood, *blood-corpuscles were seen under the microscope partly dissolved, and partly still present, but all changed (spherical, dentated, and indistinct).* The greater number of the fat-cells contained groups of crystals of margarin. The primitive muscular

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quick ; he had likewise a constant *tremor* and *subsultus.*—The hæmorrhage all this while continued from one part or other, and when stopped at one place forthwith burst out at another ; so that his urine now seemed tinged with blood, being very dark-coloured, nay almost black, soon after he was bled the second time, I was sent for, and hastened to him —I found him in the manner described, under an inexpressible anxiety, yet quite free from a delirium, though he had no manner of sleep for several days and nights: his tongue was vastly black, and *his breath so insufferably stinking,* that it was greatly offensive even at a considerable distance ; and *his stools were so horribly nauseous and fœtid,* that the very nurses fell into vomitings and faintness in carrying them off.

I found that neither of the portions of the blood that had been drawn (not even the first) had separated into *crassamentum* and *serum* as usual, though the former had stood so many hours ; but continued as it were half coagulated, and of a bluish livid colour on the top : it was most easily divided by the slightest touch, and seemed a *purulent sanies* rather than blood, with a kind of *sooty powder* at bottom. His hæmorrhage still continued, especially from the tongue, lips, and gums, with a perpetual dripping of thin bloody Ichor from his nose ; so that he was reduced to an extreme degree of weakness, with never-ceasing tremblings, *subsultus tendinum,* and almost continual faintings.

What was to be done in this dreadful case ? Would the hot, alexipharmac, volatile cordials and blisters have served him, as some might have imagined, considering his extreme weakness, faintings. load on the præcordia, tremblings, &c. But would they not have been certainly *deliterious,* would they not have certainly killed him ? as they would have added to the stimulating acrimony, encreased the fever, and further destroyed the *crasis* of the *blood, already nearly quite dissolved, and reduced to a kind of putrid gore.*

I took it in this view , and, as I had experimentally and repeatedly known the great use of the *bark* in preventing and stopping the advance of gangrenes, I gave him frequently of it in small doses with *elixir vitrioli,* premising a small quantity of *rhubarb.*—Besides this he drank tincture of roses, with cinnamon water, made very acid, and also a decoction of *Sevil* orange rind, red roses, cinnamon, and a little *japon* earth (as it is called) well acidulated : claret, and red port, with about half water, he drank at pleasure.—As the *bark* sat easy with him, I continued its use, and encreased its quantity, giving with it some *confect. fracast. sine melle* to restrain the dysenteric flux ;—and yet I now and then interposed a small dose of *rhubarb,* to carry off any bloody, bilious, or sanious matter that might be lodged in, or leak into the intestines. In the mean time I ordered him to be frequently supported with rice, panado, sago jellies of harts-horn well acidulated. toast out of claret, or red port wine ; and I directed fomentations of aromatics and astringents, boiled in red wine, to be frequently applied to the whole abdomen.

By this method, steadily persisted in, was this poor gentleman, through divine goodness, raised from a state of universal rottenness, as it were, to perfect health : not but that, for a very considerable time after this fever was quite gone off, he continued extremely weak ; and even after he was capable of walking abroad, the hæmorrhage from his nose would return on the least occasion, his gums would bleed on the slightest rubbing, and his breath continued very offensive for a long time.—By the further use of the *cortex, elix. vitrioli.* &c. this also entirely ceased :—but his legs and feet continued very much swollen for a much longer time, and his flesh all over the whole body remained exceeding soft, tender and sore, scarcely bearing the least touch.—Rhabarbarate purges, easy stomachic chalybeats elixir of vitriol, Pyrmont water with proper diuretics, and gentle regular exercise at length carried off all those symptoms, and in about two or three months he recovered a good state of health, which he still enjoys."—J. HUXHAM. *Essay on Fever. 2nd* Edit. London, 1775, p. 62.

fibres appeared pale, and in parts striated, while in other portions this appearance was wanting."*

That the blood globules, or the respiratory vesicles, are disorganized in typhus, is thus really proved. But this was not my only object in introducing these cases of typhus in INDIA, I had also desired to correct an erroneous impression which has prevailed that these putrid petechial typhoid fevers are unknown here, or known only as matters of history. My late colleague PROFESSOR GOODEVE, whose writings have done so much to clear away the obscurity which clung to the treatment of many INDIAN diseases, yet questions the existence of typhus here at the present day;† although it is met with, and not unfrequently, even in Calcutta. For instance in the Hospital of the Government Orphan School, a child Ellen Doyle, aged eight, died this present month of August, 1847, with enlarged glands of Peyer and Brunner, enlarged mesenteric glands, purple echimoses about back, arms, and pubis, vomiting like coffee grounds, after three days delirium and seven days fever, interrupted by cholera. See. No. 1589. Indeed at this season typhus prevails throughout all INDIA. DR. KIRK says, "At the termination of the rainy and beginning of the cold seasons, congestive typhoid fever is abundant all over the country; and may be found in every hospital, civil and military; invaliding and destroying more men than all the other diseases put together."

AIR.

Having now disposed of the first part of my subject, i.e. Respiration impaired or destroyed through disease or death of the red blood corpuscles, having traced some of the more obvious abnormal conditions of the blood, and shewn by the testimony of both early and modern writers that it may be positively disorganized, dissolved and therefore incapable of respiratory function, I will only add before I begin the consideration of *injuries to respiration through the air*, that my own microscopical observations of the blood have shewn me, in those who died of gangrenous typhoid fevers, in this current month of September, the blood corpuscles so generally disorganized, that to find one perfect, and regularly formed, in the portions examined, was really remarkable; and most useful in showing by contrast, the more numerous, small, irregular, multangular, or mulberry-corpuscles, that generally prevailed; or the minute disengaged nucleolar bodies scattered amongst them.

EFFECT OF CLIMATE OR CONDITIONS OF AIR IN CAUSING FEVER AND PLAGUE.

In a climate like Simlah, which is so nearly allied to that of England where we are surrounded by European forms of vegetation; we are not surprised to meet with European diseases. In the region of the oak and ivy, the pines, firs, and yew trees; where roses, and jasmines, and the graceful wreaths of the clematis, perfume the air; where buttercups violets, cowslips, and geranium are scattered around in profusion; there also is met that deadly scourge of our father-land,—the typhus fever: there also the hill-colic. But should we proceed to the higher hill ranges, we have a more ardent sort of fever, and if we go to the lower ranges one of a far more deadly type is found. Whilst the most fatal type of jungle fever, destroys the very letter carriers, in their passage through the *Terai*, at the *foot* of the hills, and cholera prevails in the plains. The Mah-murree, or plague ravages some of the northern parts of the Gurhwal district. In a letter which I received at Simlah, it is thus mentioned by Captain Huddlestone, who has charge of the district of Gurhwal: 'The mortality from this malignant fever is very great indeed, and whole villages are half depopulated. Only a few days ago I got a report of its having broken out in one village, and eleven people dying from it;—all the others fleeing to the woods and caves. The *symptoms are all those of the plague:* save that they are confined to two pergunnahs, chiefly Budha, along the banks of the Piridah river, and up the sides of the mountains, and Nagpore. The Europeans, or pilgrims, are never affected; yet the disease has now been raging for years up in these parts. It has been known to extend its usual limits, though very seldom. The people die in two or three days, and have *large swellings over their bodies;* rats, snakes, &c. die, they say, first, before its breaking out in any particular village; then the men are affected. I have at this moment several villages quite abandoned on this account, and the people have not yet returned to their homes, but are still living in the woods and in caves, and villages close by, that they may attend somewhat to their cultivation.'

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* "Pathological Anatomy of the human body," by JULIUS VOGEL, translated by Day, London, 1847. vol. I p. 579.

† "The general dread of putrescency in fever, and the fear of the disease becoming malignant, have been already alluded to; but *malignant fever* is a term which sounds strangely in the ears of an Anglo-Indian practitioner of the present time, for it is so long since fevers of the kind have appeared in this country. That diseases of a malignant character must have existed, there can, however, be no room for dispute: the received accounts of them are too well authenticated to be questioned. That is to say, there has existed a class of remittent fevers of very great intensity, verging rapidly into a typhoid character, with great prostration of strength and loss of vital power, and the eruption of petechiæ, terminating fatally on the second or third day, and resembling the plague in many respects."—*Trans. Med. Phys. Soc. Cal. vol.* viii. *Appendix* p. cxvii.

A wide field opens to us for reflection in this short account of the Mah-murree. It might suggest some very practical ideas to those who enforce quarantine. A more full investigation would probably show this disease to be the same with the malignant typhus fever, which has been desolating the villages in the neighbourhood of Simlah; for in the worst cases brought to the hospital, buboes were met with, both in the groin and axilla. see p. *206.

To shew the probability however of this disease being only a modified typhus, it will be necessary to consider the influence of climate. Climate on these hills greatly depends upon elevation. In fact this elevation comprehends *air*, temperature, vegetation, season and water, all of which powerfully modify disease. Perhaps there is no country in the known world, where a man may so rapidly pass a variety of climates, as in the Hymalayan mountains. These hills differ from those of Europe very remarkably in having no lakes to fill up the valleys. Some of them, from their towering summits capped with snow, and bearded with bare, gaunt-looking pines, go down to the deep valleys, where you meet the willow leaning over some brawling stream; and lower still, the lime trees, plantains, cactus, and wild date. Midway may be the walnut, mulberry, and perhaps the pomegranate; a little higher still, rhododendrons, oaks, and ivys unglazed, with wild cherries, raspberries, currants, and firs. Then comes the prickly oak, very like our holly, and well coated with varnish, and further defended also by lichen, moss, and long hanging dharrees; then pines, and glazed firs, conduct us to the top. It is obvious therefore that, in the course of this mountain slope, many zones of temperature, with corresponding zones of vegetation, will be passed in a few hours. I have been in the valley of the Jumna, with the thermometer 110° ; the same day have arrived at masses of unmelted snow.

That disease should be greatly influenced by such broad differences, will not surprise us. I found that a line drawn at a certain height at Simlah, on a level with the bazaars, would have all the petechial, or low typhoid cases below it ; that a mixed fever would correspond with this line, whilst that the bare, and lofty summits of the hills, are entirely free from fever. Every fatal case of fever was below this imaginary line ; and also every case of colic; whilst Captain Huddleston's letter would lead us to believe, that the 'Mah-murree' has chosen its seat far below, in the region of the cactus and wild date, and that it has never looked at the oak, the ivy, or rhododendron.

A further confirmation of these views, as to the effect of air, of decaying vegetation and elevation upon disease in the hills, was furnished by Daboo, a very intelligent lad, one of the apprentices of the Simlah hospital ; who executed the arduous duties, upon which he was despatched, with a zeal and fidelity, which I never saw equalled in a native. The ravages of the fever were so fearful about two or three marches from Simlah, that the Assistant Political Agent requested medical aid should be afforded, and this lad was sent out, with instructions, and medicines ; and aided by the countenance of the civil power, was very serviceable in arresting the disease. He had about 300 cases under his charge. He assured me that the disease would often *pass by* a village situated on a bare hill; that all the spotted cases came from low situations, and were often infectious. A man fleeing from a village where the disease was raging, would sicken in a village to which he had fled, and that there the fever would often prevail generally. But he attributed the infectious nature of the disease *to their crowding the sick together in the filthy rooms* occupied by their cattle, in the lower part of their houses, and leaving them unheeded to their fate :—husbands deserting their wives, and children their mothers. He, on the contrary, *insisted upon fresh air*, and removal to the upper rooms, quieted the excessive fears of the people, and by medicine, and simple treatment, recovered most of them. He said the more bare parts of the hills had agues, and common fever, quite different from the spotted fever, which he considered to be decidedly infectious.

In the hospital there was no instance of infection, unless this be thought such. A poor woman was brought in, who had been neglected in the bazaar ; she was spotted with petechiæ, nearly insensible ; had been almost wholly without food for several days ; and had an infant about two years old lying by her. The poor woman died on the night she was admitted. There was effusion on the brain, *congestion of lungs*, and echimosis over the peritoneal lining of the stomach and bowels, which viscera were also almost entirely empty. Her child I took away, had it fed, and looked after, at my own residence, on a hill removed at least half a mile from the hospital ; but the child sickened after it had been about a week there, broke out all over with petechiæ, and died. There was no other case of typhus on that hill, neither did any occur afterwards : common fever only was prevalent.

Thus I found at the Simla hospital; such cases of spotted petechial typhus fever, as were brought up from below, would run through their course, but never communicated disease to others in the same ward. That common continued fever, which prevailed about Simlah, did not merge into typhus at the hospital; but in the houses of the European residents surrounded with humid vegetation, it did; one lady died in consequence, another very narrowly escaped death. I found bad, neglected cases, fatal under any treatment; often dying with buboes in groins and axilla.

Yet notwithstanding the exceptions recorded, there are Olympic regions of the Hymalaya where fever is hardly known; where the ruddy hue of health glows through the dark skin of the Hindoo mountaineer; where pale and faded European children resume all the bloom of their father-land; and where the shattered nerves of worn and sickly invalids are strung anew to a joyous vibration. The mind unfettered from its petty cares, feels like the body somewhat nearer heaven; and the eye looks out with pity over the dark mountain forests, to that hazy, 'blue below,' the out-stretched plains of India; where in three small silvery streaks, we trace its famous rivers, the Sutledge, the Jumna, and the Ganges, as they roll their silent course, to many a scene of suffering and of death.

"*Non est vivere, sed valere, vita.*"

Who has not felt this, if forced to descend from such glorious altitudes in the month of September, when our temples throb, and our whole frame is feverish with heat, and we look with envy to the birds above, sailing across the deep blue sky, in that pure air which we no longer breathe.

But we *must* descend;

"Ye ken, ye ken
"That strang necessity supreme is
"'Mang sons o' men."

Our first encounter at the mountain foot, is with the yellow skinned, emaciated, or bloated inhabitants of the *terai*. All look sickly, one word expresses all their ailments, and that one word is *fever*; congestive, typhoid fever; and even their most debased intelligence can point to the one sole cause —*the air*.

But what quality positive or negative, can render air so destructive. In Italy about 1765, SPALLANZANI proved by direct experiment, that it was not loss of its elasticity, but loss of purity that rendered air destructive to animal life. Swallows exposed to the influence of mephitic exhalations from dead bodies died in a quarter of an hour.*

As respects human life, the atrocities of the slave trade, where human beings are stowed away as cargo, has sometimes been avenged upon the oppressors, by the pestiferous air thereby engendered. The black assize at Oxford, in 1577, where the very clothes of the poor prisoners, carried death to the court of justice "will never be forgotten;† at which the *judges, gentry* and almost all that were present to the number of three hundred were killed." ‡ The history of wars, seiges and slaughters, have often shown

"How *deadlier* than a serpent's tooth it is,
"*To breathe polluted air.*"

But my business is with INDIA, and one dark page in its gloomy history 'one horrid act of violence,' has fully shown, that disease and death *must* follow when the blood is poisoned in the lungs. By one single night's exposure to foul air, more than one hundred persons perished, and *typhus** *fever* of a malignant type was produced in those who survived "for they underwent in consequence a *fever which in its crisis resembled the plague.* Allison p. 185, 187.

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* SPALLANZANI. trans. *Dalyell.* Edin. 2d Edit. 1803. vol. ii p. 106.

† CAMDEN annal Regin. Elizab.

‡ A discourse on the Plague R. MAED, London, 9th Edit. 1744 p. 124.

The time when this dark deed was done was 1756, the author, Suraj-ud Dowlah, the place, this very City of Calcutta. For in the neighbourhood of Tank Square where the present Custom House now stands, a receptacle then stood, called the 'Black Hole,' consisting of a space eighteen feet square, with only two small windows, barred with iron. Into this receptacle Mr. Holwell the Governor, and one hundred and forty six British subjects were compelled to enter, in the hottest month of the year; the 18th of June, about 8 o'clock at night. At eleven o'clock, six of Mr. Holwell's intimate friends expired at his feet, at two o'clock in the morning, not more than fifty remained alive, at six o'clock it was found that of the 146 persons 23 were only breathing.

The physical effects produced; *i. e.* the symptoms of this rapid death of the blood and tissues, and all the circumstances connected with it, deserve a most careful consideration. They are given as follows:—

"Before all were within, the room was so thronged, that the last entered with difficulty; The guard immediately closed and locked the door; confining 146 persons in a room not twenty feet square, with only two small windows, and these obstructed by the varanda. It was the hottest season of the year; and the night uncommonly sultry, even at this season. The excessive pressure of their bodies against one another, and the intolerable heat which prevailed as soon as the door was shut, convinced the prisoners that it was impossible to live through the night in this horrible confinement.

* * * * *

"In the mean time, every minute had increased their sufferings. The first effect of their confinement *was a profuse and continued sweat,* which soon produced *intolerable thirst,* succeeded by *excruciating pains in the breast* with *difficulty of breathing* little short of suffocation. Various means were tried to obtain more room and air. Every one stripped off his clothes; every hat was put in motion; and these methods affording no relief, it was proposed that they should all sit down on their hams at the same time, and, after remaing a little while in this posture, rise all together. *This fatal* expedient was thrice repeated before they had been confined an hour; and every time, several, unable to rear themselves again, fell, and were trampled to death by their companions. Attempts were again made to force the door, which, failing as before, redoubled *their rage*: but the thirst increasing, nothing but '*Water! Water!*' became, soon after, the general cry. The good Jemautdar immediately ordered some skins of water to be brought to the windows; but instead of relief, his benevolence became a more dreadful cause of destruction; for the sight of the water threw every one into such *excessive agitations and ravings,* that, unable to resist this violent impulse of nature, none could wait to be regularly served; but each, with *the utmost ferocity,* battled against those who were likely to get it before him; and, in these conflicts, many were either pressed to death by the efforts of others, or suffocated by their own.

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* Vogel has proved that the organsim of the blood corpuscles is destroyed in typhus p. 201*—Here we have typhoid-death of the blood in one night.

"It proved no relief either to their thirst, or other sufferings; *for the fever increased every moment with the increasing depravity of the air in the dungeon, which had been so often respired,* and was saturated with the hot and deleterious *effluvia of putrifying bodies; of which the stench was little less than mortal. Before midnight, all who were alive, and had not partaken of the air at the windows, were either in a lethargic stupifaction, or raving with delirium.* Every kind of invective and abuse was uttered, in hopes of provoking the guard to put an end to their miseries, by firing into the dungeon; and whilst some were blaspheming their Creator with the frantic execrations of torment in despair, heaven was implored by others with wild and incoherent prayers; until the weaker, exhausted by their agitation, at length laid down quietly, and expired on the bodies of their dead or agonizing friends. Those who still survived in the inward part of the dungeon, finding that the water had afforded them no relief, made efforts *to obtain air,* by endeavouring to scramble over the heads of those who stood between them and the windows, where the utmost strength of every one was employed for two hours, either in maintaining his own ground, or in endeavouring to get that of which others were in possession. *All regards of compassion and affection were lost, and no one would recede or give way for the relief of another.* Faintness sometimes gave short pauses of quiet, but the first motion of any one renewed the struggle through all, under which, ever and anon, *some one sunk to rise no more. At two o'clock not more than fifty remained alive.* But even this number were too many to partake of THE SAVING AIR, the contest for which, and life continued until the morn, long implored, began to break; and, with the hope of relief gave the few survivors a view of the dead.

"The dead were so thronged, and the survivors had so little strength remaining, that they were employed near half an hour in removing the bodies which lay against the door, before they could clear a passage to go out one at a time; *when of one hundred and forty-six who went in, no more than twenty-three came out alive, the ghastliest forms that ever were seen alive.* (The guard) did not prevent them from removing to a distance, and were immediately obliged, by the intolerable stench, to clear the dungeon, whilst others dug a ditch on the outside of *the fort, into which* all the dead bodies were promiscuously thrown."

REMARKS.

It is hardly possible to conceive that the history of our race, will ever again present a more affecting example of brute cruelty and ignorance. Nor is it likely that the physiologist can ever meet with a more convincing illustration of the necessity of pure atmospheric air to the maintenance of the life of man. But the pathologist, of all others, should regard this sad record with the deepest attention, for it affords proof invaluable, that *fever gangrene,* and plague, may all result from the same ***Polluted Air.***

GENERAL PRINCIPLES UPON WHICH THE MORTALITY IS EXPLAINED.

In order to trace out the modes in which mortality so dreadful was produced, it will be necessary to distinguish the different effects of bad air as manifested in the preceding record. These unfortunate prisoners all suffered from it as a common general cause. Yet some died at once, within the first hour, whilst fifty were alive even at two o'clock. It will be seen, therefore, that the one cause effected their destruction in different ways. Suffocation, from carbonic acid gas;—suffocation from sulphuretted hydrogen gas;—pestilential fever; and plague,—would appear to be indicated as the order of destruction;—typhus fever and plague, breaking out in the survivors.

We must assume that the majority of these deaths were caused by the sulphuretted hydrogen gas so largely evolved from the putrefying bodies. This acts as a poison; and so generally is this acknowledged, that in London, in the case of a man dying from foul air disengaged from a putrid drain, we find in the *Spectator* newspaper for August, 1847,* the following verdict. "*The jury found that the deceased died from inhaling sulphuretted hydrogen gas.*" It is generally agreed to be the principle in malaria upon which its poisonous effects depend. But how does it act? By stopping endosmosis, preventing the pulmonary cell-membrane from either admitting oxygen to the blood, or emitting carbonic acid gas from the blood. Thus a man may die from it as rapidly *asphyxied*, stifled, as if he were hung, or drowned. This is evident from PROFESSOR MATTEUCCI'S experiments upon *endosmotic* action. "A fact still more difficult of explanation, is the *agency of sulphuretted hydrogen in immediately checking the process.* (1.) *As soon as the least putrefaction commences in the membranous septum, the endosmose ceases,* and the liquid returns by filtration; (2.) *and if a fresh membrane be exposed, even for a short time, to sulphuretted hydrogen, no endosmose will take place through it,* even between two liquids ordinarily most energetic in their action on one another. (3.) *In like manner, the introduction of a very small quantity of sulphuretted hydrogen into the liquids* employed is sufficient to *retard* or *check* the process, even though these liquids, when pure, are powerful supporters of *the endosmotic current.*"†

Now each of these three states, will be found exemplified, by the action of this gas upon the living membranes, tissues, and blood, of the sufferers in this dreadful tragedy of the 'Black-hole'; namely, *asphyxia* from a first contagion :—*putrid fever* from arrest of the blood's proper motion and action, (already alluded to p. 198*) and *gangrene*. For this gas being itself an immediate product of putrefaction, engenders the same state; causing *putrefaction* in the pulmonic cell membrane, and also in the *vesicular envelope of the blood* corpuscles, from simple exposure to it. Again its admixture with the liquid blood, not only taints the body generally, but escaping from the lungs, as the fumes, or breath of all pestiferous bodies, would still further taint the air; even whilst such persons were alive and breathing. In other words this disorganizing agent acts by suffocation, (1.) taint, (2.) putrefaction, (3.) These effects being diffused by the circulating blood; and forming fresh and fresh points of departure; according to the laws which govern *eremacausis*, or the putrefactive process," by which "animal substances in a state of decomposition, can excite a diseased action in the bodies of healthy persons, so that their state is communicable to parts or constituents of the living body " and" a state is induced in these parts like that in which the particles of the putrefying body themselves are."* Liebig.

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* The inquest on George Gross, the man who was suffocated at Langley Court, Long Acre, was resumed on Monday. Much evidence was given as to the bad state of the sewerage throughout the neighbourhood. Mr. Le Breton, solicitor to the parish and a Commissioner of Sewers, stated that Long Acre itself was without a sewer: the Mercers Company were the principal proprietors of the houses in the street, and they had neglected to make a sewer: by an act passed last session, the Commissioners of Sewers were empowered to act in such a case, and they intend to do so here. Though the foul state of the drains was the ultimate cause of the man's death, a more immediate or proximate agent was discovered. There is a pretty good drain in Langley Court, but it runs into one on a higher level in Hart Street; the latter was stopped, and this produced a great accumulation of filth in the Langley Court drain: to purify the air, the landlord of the house in the court had been in the habit of throwing lime down the privy, which also accumulated: on the day of the disaster, a man at a drysalter's in Long Acre threw into the drain about three quarts of old vitriol; observing an effervescence, he poured down a large quantity of water; *in a short time the whole neighbourhood was poisoned by foul exhalations.* Apparently, the sulphuric acid had acted on the lime in the drain, *and large quantities of sulphuretted hydrogen had been liberated: this gas killed Gross.* It does not appear that the drysalter's man had any notion that he would create such a nuisance by throwing away the vitriol. The Jury found, "*That the deceased died from inhaling sulphuretted hydrogen* gas, caused by a quantity of vitriol being poured into a defective and foul drain."

† British and Foreign Med. Rev. Ap. 1847, p. 386.

It will be necessary to bear in mind, that the humours and tissues were assailed at the same time, both internally and externally. *Internally* we have sulphuretted hydrogen tainting, causing filtration, diluting solids and fluids; *externally* besides the exciting cause from the decomposing bodies, we have the excessive *heat* and *vapor* of the prison, which together with the still air, formed such a constitution of air as would have naturally putrified raw flesh.

"In this manner the putrefaction of meat advances quicker in a confined than a free air; for, as the most putrid parts are also the most fugitive, they incessantly issue from a corruptible substance, and disperse with the wind: but, in a stagnation of air, they remain about the body, and by way of ferment excite it to corruption."—PRINGLE.

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* See Experiment XVIII. by Pringle, a thread dipped in a rotten, putrid egg, communicates that state of putridity to another fresh egg, also note as follows :—

Corpus in putredine existens, alii (corpori) a putredine libero facillimè corruptionem conciliat; quia illud ipsum (corpus) quod in motu intestino jam positum est, alterum quiescens, ad talem motum tamen proclive, in eundem motum intestinum facile abripere potest. Stahlii. *Fundam. Chymiæ. Part.* II. *tract* I. *sect.* I. *cap.* v. In this light Stahl and other celebrated Chemists have considered a *putrid ferment*, and generally used the same expression for it. Beccher *(in Physic. Subterran. Lib.* I. *sect* v. *cap. i. n.* 34.) treating of a corrosive putrid substance taken in aliment, says of it, *Fermentum universo sanguini imprimit.* And Mr. Boyle has used the words *fermentation* and *putrefaction* of the blood promiscuously, in his piece called Observations and Experiments on the Human Blood. But these authors are, nevertheless, very careful not to confound *putrefaction* with vegetable *fermentation*, accounting them only analogous processes."—Obs. on the diseases of the army, by John Pringle M. D. F. R. S. 2d Edit. London, 1753 p. 339, 340.

See also Baron Liebig, Animal Chemistry, p. 231, 3d edit. London, 1846. He considers *motion* to be the efficient cause of putrefaction: thus at p. 231, 232." But when a body, which is itself in a state of decomposition, that is, whose particles are in a state of change of place, of motion, brings another body into a similar state, and observation has excluded all other known causes of change or decomposition in this second body, with the exception of *one*, when it is demonstrated that this one cause (communication of motion, friction, percussion, &c.) has a decided share in the formation and decomposition of a number of compounds, this last must be regarded as the efficient cause, if the ideas derived from the doctrine of motion are at all applicable to chemical phenomena. The demonstration of this last and only cause is therefore not a mere word, which has been substituted for the expression, " catalytic force," but it is the expression of an idea, precisely the reverse of that of a catalytic force."

SUFFOCATION.

But whilst the greater number of the sufferers in the BLACK HOLE undoubtedly perished from the effects of sulphuretted hydrogen gas, we must yet conclude;—

1st.—That others even during the first hour of confinement were *drowned*, in carbonic acid gas, which being heaviest, formed the lowest strata of that pestilential atmosphere. It is said of these that having *stooped down*, they fell (asphyxpied) and were soon 'trampled to death.' Their dead bodies speedily becoming *putrefying* carcasses, exhaling as a result of their decomposition, sulphuretted hydrogen; of which the "stench was little less than mortal" to the survivors.

2nd—Of these survivors: some must have died from its primary direct effects in checking respiration. The blood of these men would come to the lungs for breath, but little even of the oxygen which might exist in the 'depraved air' of the dungeon, so saturated with 'hot and deleterious effluvia' little, I say, could possibly gain admittance to their blood vesicles; partly because little existed, but chiefly, owing to annihilation of all endosmotic faculty in the pulmonary cell-membrane, after exposure to sulphuretted hydrogen. For supposing this noxious air to be introduced mechanically into the air cells, by the mere physical expansion of the chest, *and not to mix with* the blood at all, it may yet prove a cause of asphyxia and of death. This *peculiar* kind of asphyxia is a direct *sequence therefore from a fault of the pulmonic cell membrane.*

Again 3rd the majority perished by *the introduction of a very small quantity of* sulphuretted hydrogen with the atmospheric air into the blood, so that it became mixed with the blood; for then must the blood vesicles in like manner lose *their* property of endosmosis, and return their contents by filtration. But admitting putrid gas to be carried on *with the current of blood*;—then the blood vesicles *generally* will be paralyzed, their respiratory function stopped, filtration will take place of their contents outwards, till it will be difficult to find any perfect vesicles; they are all seen by the microscope to be either angular, and indented on the edges, or mulberry shaped, and of less transparent aspect, or like empty, flaccid, and wrinkled bladders. "*For a very small quantity of sulphuretted hydrogen in the liquids employed,* (the blood, &c.) *is sufficient to retard or check the process* (exchange) even though these liquids when pure are powerful supporters of the endosmotic current."

All vital, *reproductive*, and conservative tendencies, would be lost; and every respiration add to the elements of *destruction*. In fact we can hardly realize inductively, all the consequences which must follow upon loss of endosmosis, with consequent reversion of such action, *i. e.* filtration back again, as taking place in the blood generally; throughout all the capillaries; in all parts of the body.

CHOLERAIC STATE.

But we may profitably dwell a little upon this perilous condition, in order to the more complete comprehension, of so vastly important a subject;

not only claiming our attention from its application here, but to other most common and fatal diseases.

This is, I apprehend, the mode of death in cholera-asphyxia, which has its origin generally in the same cause, bad air.[*] If the vesicular envelopes of the blood corpuscles instead of transmitting the oxygen requisite to excite the various operations of the tissues by its chemical action upon them, have no oxygen to transmit, but pour out their own contents by filtration;—if the vessels, the capillaries generally filter out their contents:—then the red matter of the blood corpuscles would transude into the areolar tissue of organs, as we see in cholera; and besides, "profuse, continued, *cold* sweats" would inundate the skin; causing intolerable thirst; would exhaust and torment the sufferers: as we see both in cholera and hill-colic: to which we may, or *may not* have superadded, effusion of matters into the intestinal canal, and these rapidly discharged. The blood corpuscles would be flaccid and empty, or burst; and look as different from healthy blood corpuscles, as dried currants do from fresh: whilst the extravasated nucleolar bodies would abound, resembling the disengaged fruit seeds, mingled with extravasated fibrillating fibrine (such is the appearance of cholera blood, which I examined this month, when magnified 600 times. The corpuscles pretty generally *quadrangular*, arranged in circles, like stones in a pavement.) "Let us suppose that the globules lose their property of absorbing oxygen, of afterwards giving up this oxygen, and carrying off the resulting carbonic acid, and a hypothetical state of disease, must instantly become perceptible in the temperature, and other vital phenomena of the body. The change of matter will be arrested, while yet the vital motions will not be instantly stopped. The conductors of force, the *nerves, will (for a time)* convey, as before to the heart, and intestines, the power necessary for their functions. This power they will receive from the muscular system, while, as no change of matter takes place in the latter, the supply must soon fail; as no change of matter occurs, no lifeless compounds are separated, neither bile nor urine can be formed, and the temperature of the body must sink." "This state of matters soon puts a stop to the process of nutrition, and sooner or later death must follow, but unaccompanied by febrile symptoms, which in this case is a very important fact."* *We need not resort to hypothesis—this account comprehends and explains, I believe, all the true choleraic symptoms completely: and so also hill-colic is fully explained in loss of the blood's endosmotic faculty.*

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[*] "A public meeting was held at the London Coffee-house on Tuesday, (September 17. 1847,) for the purpose of promoting a subscription for the widow and family of the late Dr. Jordan Roche Lynch, who recently died of typhus fever, a martyr to the cause of sanatory reform. The chair was occupied by Mr. Edwin Chadwick; who was supported by a large body of influential persons. The chairman paid an eloquent tribute to the talents and exertions of Dr. Lynch.

"At my request he constructed a map, in which was shown the locality, the house, as well as the street, in which every fever case had occured, within a large district during a long period of time. *This was a highly important service; being one of the first maps I could procure to trace the habitat of typhus, to exhibit its close coincidence with the track of cholera and other epidemics, and their identity with bad drainage, filth, overcrowding, and bad ventilation.* He had made observations, and was preparing other contributions to the determination of the extent of the removable causes of disease. * * * *

"The chairman went on to observe, that those who have entered closely into sanatory investigations have almost *invariable experienced in their own persons the injurious effects of the bad atmosphere in which they have laboured. The danger of such practice equals that of military service in time of actual war* * * * * * * *

"A resolution was passed confirming the proceedings of a provisional sub-committee which had previously taken charge of the subscription; and the following names were added to its list of members—Lord Ebrington, Lord Ashley, Mr. Richard Taylor. Mr. Deputy Obard, Mr. R. A. Slaney, Professor Owen, Mr. John Abel Smith and Dr. Farr. Donations were announced to the amount of upwards of 150*l*, including the following—the Duke of Buccleuch, the Earl of Ellesmere, Lord John Russell. Lord Morpeth, Lord Ebrington Lord Ashley, and the Bishop of London 10*l* each; the Chairman, Mr. James Anderton, Mr. G. A. Walker, Mr R, Taylor, Mr. B. Fowler. and Mr. Burchfield, 5*l* each Mr. R. Cooke Mr. John Sargent, Mr. T. H. Jolley, and Mr Bottrell, 2 guineas 5 each.—*Spectator, August* 21, 1847.

TYPHOID STATE.

Forasmuch however as it is a law of our vital economy that *oxygen should enter into combination with the nervous matter, in order to the production of nervous force*;—consequently to vitiate the air by all foreign gases, to paralyse, so to speak, the blood's endosmotic action, to rarify the air, so that less can be drawn in, to mix it with heated vapour, rife with decomposing atoms;—must powerfully oppose the combination of the oxygen of the blood with the carbon and hydrogen of the nervous matter;—*must prevent* the production of nervous force. A continuance of this state, with filtration outwards, is the very condition required to produce softening of the nervous centres, and accounts for the typhoid symptoms produced in the sufferers.

No organic lesions in the blood nor tissues having yet occurred, we might conceive all this to exist for a short time, and yet the persons be capable of recovery from such a hazardous state. And we know that some survived; undergoing however, *as is often seen in grave typhus*, the milder symptoms of plague; namely 'blotches,' (extravasated, dead, blood-corpuscles) 'boils' and 'carbuncles,' (gangrenous cellular tissue) 'buboes' (sloughing glands). But the blood globules being now in a very different condition from mere asphyxia, neither an electric shock through the diaphragm† as in a drowned man, nor a slap on the back as in a still born infant, could resuscitate them, even in fresh air. And supposing this state to continue, fever must increase every moment with the increasing depravity of the air in the dungeon. The sulphuretted hydrogen and other putrid gases must gain admission more abundantly through the lungs and skin; their disorganizing action would be greatly facilitated by depressed vital power on the one hand, and the mechanical disruptive effects of heat on the other.

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* Liebig. Animal Chemistry, 2d Edition 1843.

† RESTORATION AFTER DROWNING BY VOLTAIC ELECTRICITY.

The following particulars are published by Dr. Fergusson, Surgeon to the Westmeath Infirmary, in the "Dublin Medical Press" of July 1st:—

On Thursday evening, the 18th instant, I was requested to see James Rock, who had just been taken out of the canal, and was supposed to be dead. I was with him in four or five minutes. I had him forthwith removed to the County Infirmary, about 900 yards distant. Several persons said that he was six or seven minutes under the water, and that he had been intoxicated. Finding the abdomen very much distended, I immediately introduced the stomach pump, and discharged by it upwards of a gallon of water strongly impregnated with spirits. All the ordinary means of restoring animation failing, I tried a plan which I have long considered likely to bring about the action of the heart and lungs, by immediately acting on the diaphragm, and accordingly was prepared with the necessary apparatus. I made an incision below the seventh rib—cut down on that important muscle the diaphragm—laid it bare, and applied the conductors of a galvanic battery, consisting of fifty pairs of plates, to it. The effect was instantaneous, and surprised all the persons present. The muscles of the chest and abdomen became spasmodically engaged; after a few moments, I could see this spasmodic action gradually disappear, and the regular action of the chest come on, which soon increased till breathing became quite apparent, as also the circulation, and blood, now for the first time, issued from the wound I had made in the chest.

For we must remember that with loss of nervous power *lentor* of the blood will follow; its motion being impeded congestion succeeds; congestion of the blood in the lungs as we have seen (pp. 199* 202*) affects the whole body mortally. But circulation and respiration are yet only checked. But it were better almost that they should cease; since every breath only serves to admit fresh supplies of pestiferous elements, and every pulse of the heart but serves to spread the contagion through the body.

> " Inde, ubi per fauces pectus complerat, et ipsum
> " Morbida vis in cor mæstum confluxerat ægris;
> " Omnia tum vero vitaï claustra lababant."
>
> LUCRETIUS, L. VI. V. 1150.

GANGRENE OR PLAGUE.

When blood is vitiated by the admixture of putrid gases, as shewn in the preceding case of HUXHAM'S, by " insufferably stinking breath," when these gases were thrown off in the lungs; and as in typhus generally by the evolution of ammoniacal gas: (which causes the *hematin to be dissolved in the serum*) when once a putrefactive process has been communicated to the blood, gangrene of the viscera will rapidly follow. It is probable that this gangrene of the viscera was the condition which destroyed the life of many in the BLACK HOLE. This instance is illustrated in the case of those who die rapidly of plague. " The French Physicians having distinguished the sick at Marseilles into five classes, according to the degrees of the distemper, observed bubo's and carbuncles, in all of them, except in those of the first class, who were so terribly seized, that they *died in a few hours*, or at farthest in a day or two, sinking under the oppression, anxiety, and faintness, into which they were thrown by the first stroke of the disease; *having mortifications immediately produced in some of the viscera*, as appeared upon the dissection of their bodies."*—MEAD.

We must still bear in mind what most disastrous effects will necessarily follow a general suspension of the laws which regulate the transmission of gases through living or fresh membrane; or the laws of endosmosis, and of exosmosis: for the exchange in the air cells of the lungs, of carbonic acid gas for oxygen, is clearly referrible to this law. It is in fact breathing: " constituting one of those combinations in which physical laws appear to be operating under peculiar conditions, which scarcely any thing but a living organised body can supply."† But besides this (as noticed in the preceding section on the Blood) wherever exchange of gases or of liquids goes on naturally in living bodies, the production of force, (motion,) reparation of waste

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* Observat. et Reflex. touchant la Nature, etc. de la Peste de Marseil'es, p. 4 et suiv. MEAD. p.

† Brit. Med. For. Rev. Ap. 1847.

(nutrition,) and also the evolution of animal heat, must depend upon *it*; and must be interrupted, or cease, if this endosmotic action be checked or stopped, wheresoever it take place, in animals: in a man, a fish or a polypus, or whether in the lungs of a man, or in his finger's ends. One or two examples may illustrate the application of all this to morbid processes.

Now it appears that gas or fluid which could be rapidly passed through a *fresh*, or healthy membrane, by endosmotic current, will yet cease to do so if this condition of healthy freshness in the membrane be wanting "As soon as the least putrefaction commences in the membranous septum the endosmose ceases and the liquid returns by filtration." For instance, we will suppose endosmose to be actively going in a healthy bowel, and transferring the nutritious contents of that bowel to the vessels designed to convey it away;* but let the bowel, *i. e.* the membrane become putrid in dysentery, and filtration of the contents of vessels *back into* the bowels takes place, constituting a perilous drain from the blood, at the very time that nutrition, *i. e.* endosmose, is stopped. Emaciation ought to be rapid in such case, and it is so in dysentery. How rapidly gangrene of the bowel, and of the liver may occur, when the blood becomes tainted, will be shown hereafter by adducing several instances this season.

Or in the lungs, suppose the pulmonary cell membrane constituting the air cells to be in a state that precedes gangrene, the respiration, the exchange of gases, the endosmose is *stopped; owing to this very slight putrefaction in the membrane;* whence asphyxia will begin to take place. And that will be mechanically increased by filtration into the air cells of fluid from the blood. Those would appear to be the real conditions which are often present in gangrenous asthenic pneumonia.

Once more, when the typhoid state had weakened the vital power of cohesion in the nervous, centres and the putrefactive agent is admitted into the blood, the elementary component parts of a soft structure like the brain would rapidly disengage themselves, and gangrene would ensue. Gangrene of the brain is exceedingly common during the latter end of the rains in Calcutta, I have met with three or four instances this season.

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* In a very good paper, full of original thought, Dr. KIRK speaking of Indian Typhus, says, "I conceive that no principle in physiology is violated, by the idea that a poison may be generated within the living body, by the chemical influence of the component parts of the food *taken into the stomach*, and even of the blood, and other fluids on each other, whereby the very same elements are disengaged, which when escaping from putrescent animal and vegetable matter, cause fever by being inhaled.'........ The whole train of symptoms, arising in the direct application of a poison to the brain; which is being carried in the circulation, and which is derived from the food, that has remained so long in the stomach, that it has become altered, chemically; so that the elementary component parts are disengaging themselves, as is the case with putrescent vegeto-animal matter; and Sulphurretted Hydrogen, probably combined with Ammonia, producing the same poisonous effects as if inhaled from without."..... .... To dwell on the deleterious effects of Sulphurretted Hydrogen, on animal life, would be wasting time. Physiologists and chemists are agreed as to this evil, and are moreover agreed as to its being the principle in malaria, on which its poisonous effect depends." On congestive typhoid fever, by K. W. KIRK. M. D. Trans. Med. Phys. Soc. Calcutta, vol. IX., p. 171.

"It is a fact, that the use of several kinds of food, as flesh, ham, sausages, in certain states of decomposition, is followed in healthy persons by the most dangerous symptoms, and even by death."—LIEBIG, p. 204.

In the dissections of those who died of the plague at Marseilles, the brain and lungs were most frequently mortified. **Pringle** says of the malignant petechial fever p. 261, "it always terminates (when it proves fatal) in actual mortification of some part, or in abscess of the brain, *often ichorous.*"*

RAPID DISSOLUTION OF THE BRAIN FROM PUTRIDITY OF THE BLOOD.

Exudation would doubtless take place from the capillaries of other organs, but especially into the soft and easily disorganized structure of the brain; possessing such small capillaries, and such naturally weak cohesion. Indeed we may suppose that this was the first to suffer; as indicated by the 'rage,' 'ferocity,' 'agitations, and frantic despair' recorded: for it is said "Before midnight all who had not partaken of the air at the windows were either in a *lethargic stupefaction* or *raving delirium.*" When the blood is generally tainted, the brain becomes dissolved with wonderful rapidity. This occurs in Calcutta to an extent unknown in other climates, or at least unrecorded: but frequently also unattended during life by any of the phrenetic symptoms which are manifested in sthenic inflammation; so rapidly indeed and so commonly, during certain depraved conditions of the air, that I have occasionally found of the ten or twelve bodies brought for the use of my anatomical class, four or more brains entirely disorganized, when the bodies generally, afforded no indication of putrefaction. This subject would more naturally fall under consideration when we treat of the nervous system, and brain; but in elucidation of what I have stated, of the probability of the Black-hole prisoners dying from this cause, in a few hours, and of its resulting rapidly from the action of putrefactive air upon the blood, I will mention three instances which occurred the last month, October 1847.

A young native woman was delivered by the forceps, of her first child, after the child's head had been impacted three days; and the rude efforts of native midwives had been made in vain for her delivery. I observed at the time, that the vagina was lacerated, before the instruments were applied. The child was dead; and sloughing took place in the vagina and uterus (see No. 1604) of which the poor woman died. On the night preceding her death, she was *moving about in her bed,* and *talking sensibly.* No one suspected the brain to be diseased; and it was not until the head was opened for the purpose of getting a brain for my anatomical lecture, that it was examined at all. Both lobes are seen in the preparation No. 1615 to have become mere cysts, (containing only broken up brain like clotted cream, which was poured out from each side.) The cyst on the left side is so thin, that the light shines through it. Externally the brain looks natural. The base, medulla oblongata, and the cerebellum, natural also.

Now here there can be little doubt but that the blood became tainted from the extensive sloughing and mortification of the womb. The brain suffered as the powers of life became weaker. It was rapidly disorganized, from the putrid blood circulating in it ; sulphuretted hydrogen blackening its dissolved portions. The brain was taken out seven hours after death. (Case under my colleague PROFESSOR STEWART.)

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* "The *most unexpected* appearances after death were abscesses in the brain." p. 258. He speaks of the "entire" possession of senses the night before death p. 259 again "That as to the abscesses so often found in the brain *the ichorous kind* (which I call gangrene, discerption, dissolution) *may be considered a species of mortification proper to parts of that texture.*—**Pringle** p. 261."

On the same day, October 13th, there was another brain taken out for the same purpose, from a Bengallee ; a man who died of strangulated hernia. PROFESSOR O'SHAUGHNESSY mentioned to me as remarkable the rapidity of the man's death before an operation could be performed, (only ill 18 hours.) But the brain was not suspected. When, however, it was taken out for the demonstration, that day, of BABOO DWARKANATH BOSE, he pointed out this state to me. It was just like the last (see No. 1616) excepting that one lobe of the cerebellum was disorganised also.

On the 28th of October, another gangrenous brain was brought to me from a Hindoo, aged 25, who died of chronic dysentery. Here the man was admitted on the 26th with *involuntary* bloody stools "*unable to articulate distinctly, stupid look ; but conscious of all that is said to him.*" *Stupor* on 27th—died on 28th. Here the brain is more extensively disorganised —the base injured, softened ; the cerebellum, disorganised in both lobes : and one point of the anterior lobe, only covered by the cerebral meninges, *no cerebral substance* left ! whereas the other two have a *thin crust of brain.* Two others came in at about the same time but I know nothing of their histories.

Other brains opened on the same day, of men dead the same length of time, were perfectly sound. These were doubtless disorganized from the mortified, or sloughing, or ulcerated intestines, producing sulphuretted hydrogen ; or other putrefactive gases ; which were taken up into the general current of the blood by the mesenteric vessels.

The rapidity with which gases—(sulphuric ether for instance) when inhaled, affect the brain, is familiar to all in the process of etherization to procure stupor before surgical operations. One case illustrating the insidious progress of softening, upon derangement of the cerebral circulation, is recorded by me p. 309, where the woman died from a fall.

During this month four cases of gangrene of the liver, coincident with dysentery occurred, and one of gangrene of the lungs. Every case of wound, or sore, admitted about this time into the Native surgical ward, has been in a gangrenous or sloughing state.

The blood of these native patients was doubtless poisoned, disorganized from malaria. Nor will any one be surprised at this who knows the putrid state of the air in Calcutta when the rains cease ; and all the filthy stagnant pools, and puddles, and drains, of this the very worst drained city that I have seen even in INDIA, are exhaling disease and death to all around. Nor, is it to be wondered at, that fevers destroy the Europeans also, with such appaling celerity, nor that without any extraordinary head symptoms, at least without phrenetic symptoms, they often die in one or two days. Dissolution and gangrene may occur without inflammation.

This is not a place for discussing inflammation. Inflammation, it may be said ! who does not understand this ? It is easy as our catechism, " pain, redness, heat, swelling, are its signs," the lancet and calomel its cure : why all this follows like " light, heat, and electricity ; or the properties of matter ; or the rays of light, represented in the word VIBGYOR." But vast is the mischief nevertheless done throughout this country by the prevailing doctrines respecting its essential nature; namely, that *it depends upon the exaltation of activity in the vessels of a part*, whereas it depends generally upon a precisely reverse condition : at least if fibrinous, or albuminous depositions, and gangrene, be admitted as evidence of its having existed. To me it is most fully established, by my own pathological investigations in this country, that the dilated condition of the vessels which produces fibrinous effusions, is often preceded by *a want of activity ;* and follows upon congestion, or the accumulation of blood corpuscles in the capillaries and vessels, or lentor of the blood ; which we have seen must succeed loss of endosmotic faculty. This fundamental error accounts in a great measure for the mistakes and mis-statements respecting the diseases of the country, especially the *organs or mechanical instruments of respiration and circulation :—the left heart and blood vessels:—the right heart and lungs.* This mistake is clearly enunciated by DR. WAITZ p. 100 and has been repeatedly referred to by me, "*we are led to presume* (he says) that such kinds of sickness as have their *origin in a too impetuous determination* of the blood to the heart and lungs will be less frequent and less intense in a hot than within a cold climate," and therefore he concludes we cannot have pneumonia, nor aneurism in INDIA. This is a general, I had almost said universal presumption, with every young man that comes into the country. But if it were generally known and believed that the passive congestions of fevers, and of cholera, are followed, or accompanied by fibrinous exudations from capillaries, upon the walls of the heart ; upon the coats of the blood vessels ; and that these become organized false membranes : and hence, that hypertrophy of heart—aneurism, and valvular disease—arise not from increased activity—but from stagnation :—if it were generally known that the poor feeble Hindoos die with extensive effusions of fibrinous character in the chest, and in the abdomen, not confined to one, but inundating many organs at once, producing softening and discerption of lungs, liver, and spleen, and heart ;—I say if this were generally known, we should feel little surprise that the brain is found so frequently utterly disorganized as in these instances adduced.

It may be thought that the BLACK-HOLE tragedy has been a short text for a long sermon upon loss of respiration through the blood. But it stands alone in the magnitude of its importance as proving the origin of typhus and plague, from bad, putrid air. Individual instances, of which there are many on record,* would not be so satisfactory ; nor cases occurring in other countries, but I cannot refrain quoting the following from PRINGLE.

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* "In Sept. 1834, Peter Macawley, about twenty-eight years of age, gardener and grave-digger, was employed in the churchyard of Tranent. While busily digging a grave; he unexpectedly struck a coffin with his spade, and broke it open. The coffin contained the remains of an old woman, who had died of consumption of the lungs, and who had been intered about fourteen months.

There immediately issued from the coffin the most offensive effluvia, which threatened suffocation, and made him feel very unwell.

He proceeded home, and continued throughout the night very poorly, giddy, and uncomfortable. He rose next morning, and although no better, proceeded to the churchyard, gave some directions, and returned home, feeling giddy and unsteady. He was put to bed, and passed a very uncomfortable night.

"Of the some kind of infection we have an unhappy instance so fresh in our memory, that I need not have mentioned it here, had it not been to inform such as live at a distance, or those that are to come after us. In the year 1750, on the 11th of *May* (N. S.) the sessions began at the *Old-Bailey*, and continued for some days; in which time a great number of criminals were tried, and there was present in the court a greater multitude than usually attends. The hall in the *Old-Bailey* is a room of no more than about 30 foot square. Now, whether the air was at first tainted from the bar, by some of the prisoners, then ill of the jail-distemper, or by the general uncleanliness of such persons, is uncertain* ; since, from the latter cause it will be easy to account for its corruption; especially as it was so much vitiated by the foul steams of the *Bail-dock*, and of the two rooms opening into the court, in which the prisoners were the whole day crowded together, till they were brought out to be tried†: and it appeared afterwards, that these places had not been cleaned for some years. *The poisonous quality of the air was still aggravated by the heat and closeness of the court, and by the perspirable matter of a great number of all sorts of people penned up for most part of the day, without breathing the free air, or receiving any refreshment.* The bench consisted of six persons,‡ whereof four died,

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Called in next morning to prescribe for him, I found him to be affected with severe pain of head, great heat and sweating of skin, and great quickness of pulse. He complained of thirst, could take no food, and was occasionally delirious. On the third day of his illness, pimples appeared over the whole surface of the body, which gradually becoming larger, assumed the form of small-pox. *The pocks or pustules did not mature or fill with matter in the usual way, but continued throughout to be flat, and assumed a dark blue or inky colour.*

His strength fast declined,—he became very low,—muttered incoherently to himself, *and symptom is of a putrid character supervening, and the energies of the system* fast failing, he died insensible about the twelfth day of his illness, of the worst form of immature, putrid, confluent small-pox I had ever witnessed.

He was a powerful, well-formed, and laborious man, was in good general health up to the moment of his being affected in the grave,—and it was not ascertained that he had been in a situation to receive infection from any other source."—ALISON on *Contagious Poison*, p. 106.

* It has been the custom, some days before in every sessions to remove all the malefactors from the other jails into *Newgate*, already too much crowded. At such times three hundred may be confined within that narrow space; and it is well known how nasty both this and all the rest are kept.

† I have been informed, that at these sessions about a hundred were tried, who were all kept in these close places as long as the court sat, and that each room was but 14 foot by 11, and *seven foot high.* The *Bail dock* is also a small room taken off one of the corners of the court, and left open at the top; in which, during the trials, are put some of the malefactors, that have been also under the closest confinement.

‡ *Viz.* the Lord *Mayor*, one of the *Lord's Chief Justice*, two of the Judges, one of the *Aldermen* and the Recorder. Of these died Sir Samuel Pennant, Lord Mayor; Sir Thomas Abney and Baron Clarke, *Judges* : and Sir Daniel Lambert, *Alderman.* It is remarkable, that the Lord *Chief Justice* and the *Recorder*, who sat on the Lord *Mayor's* right hand escaped, whilst he himself, with the rest of the bench on his left, were seized with the infection; and that the *Middlesex* jury, on the same side of the court, lost so many, whilst the *London* jury, opposite to them received no harm; and that of the whole multitude but one or two, or at most a small number of those that were on the side of the court to the Mayor's right hand, were taken ill. Some, unacquainted with the *dangerous nature of putrid effluvia*, have ascribed both this circumstance, and the sickness in general, to a cold taken by opening a window, by which a stream of air was directed to the side of the court on the Lord Mayor's left hand: but it is to be observed, that the window, was at the farthest end of the room from the bench, though the judges suffered most. Neither could the kind of the

together with two or three of the counsel, one of the under-sheriffs, several of the *Middlesex* jury, and others present, to the amount of above forty in the whole; without making allowance for those of a lower rank, whose death may not have been heard of, or including any that did not sicken within a fortnight after the sessions.*

It was said, that the fever in the beginning had an inflammatory appearance†, but that after large evacuations the pulse sunk, and was not to be raised by blisters or cordials, and that the patients soon became delirious. *Several had the petchiæ*; and all that were seized with the fever died, excepting two, or three at most. Some escaped without a fever, by a looseness coming on, which was easily cured. This sickness, as far as was known, spread no farther; which was perhaps owing to the season, and to the weather, at that time cold from northerly winds."

EFFECTS OF PUTRID ANIMAL AND VEGETABLE EXHALATIONS OR OF SULPHURETTED HYDROGEN FROM ORGANIC MATTER.

"The malignant or pestilential fevers are various, according to the virulence of the *miasma*, or putrid ferment received into the blood; but all depend upon some internal or external *fomes* of corruption, whether owing to a scorbutic habit, or to exhalations from putrid animal, or vegetable substances. I shall first treat of the external cause, and next of the internal.

I. The hospital and jail-fevers are to be considered as the same disease, and little, if at all, different from such as have arisen after battles, when the bodies of the slain have been left unburied to rot upon the field. This *Galen* notes as one of the causes of pestilential fevers‡, and is supported by the testimony of other authors; in particular by *Forestus*, who was eye-witness to a distemper of this kind, (which indeed he calls a plague) owing to the same cause, attended with buboes, and a high degree of contagion.§ The same author also gives an account of a malignant fever breaking out at *Egmont* in *North-Holland*, occasioned by the rotting of a whale that had been left upon the shore.‖ We have a like observation of a fever affecting a ship's crew, upon the putrefaction of some cattle, they had killed in the island of *Nevis*, in the *West-Indies* ¶. These men were seized with a pain in the head and loins, great weakness and disorder of the stomach, accompanied with a fever. Some had carbuncles, and it was remarked that purple spots appeared after death.

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fever, or the mortality attending it, be imputed to any such cause. It is therefore probable, that the fresh air directed the putrid streams to that part of the court above-mentioned. This, indeed, must be granted, that all septic particles passing into the blood become more active and fatal if the infected person catches cold, or by any accident suffers a stoppage of perspiration; for a free perspiration is the chief means by which the blood is freed from any morbific matter of that kind.

* This number, and the other circumstances relating to this disaster, I had from Mr Alderman Janssen, then one of the Sheriffs, and who, by virtue of his office, was present all the time.

† Vid. P. 247.

‡ Epit. Galen. de Feb. Differ. Lib. I. cap. iv.

§ Observat. lib. vi. obs. xxvi.

‖ *Obs.* ix. *schol.* Paraeus says, that in his time the like happened on the coast of *Tuscany*. *Vid. de Peste. cap.* iii.

¶ Traite de la Peste.

Hippocrates describes a pestilential constitution, and imputes it to a southern, humid and close state of the air.[*] The putrid *effluvia* of lakes and marshes are mentioned by *Galen* as having the same effect.[†]

One of the most memorable pestilential fevers, incident to an army, is recorded by *Diodorus Siculus*;[‡] which broke out among the *Carthaginians* in *Sicily*, at the siege of *Syracuse*, and proved very destructive. That author not only mentions some of the most distinguishing symptoms, but reasons well about the cause. We find that pains in the back, and eruptions were common; that some had bloody stools; and others were suddenly seized with a *delirium*, so as to run about, and beat all that came in their way;[§] that they died on the fifth, or sixth day at farthest; that the physicians knew no cure; and that it was the more fatal as the sick were abandoned by every body, on account of the contagion. As to the cause, the historian takes notice of the multitude of people confined within a narrow compass; the situation of the camp in a low and wet ground; the cold air from the marshes before sun-rising, succeeded by scorching heats in the middle of the day.[‖] He adds, the putrid steams arising first from the marshes, and afterwards from the bodies of those who lay unburied.

We observed that the first full account of malignant epidemic fevers attended with *petechiæ*, was given by *Fracastorius*. One of these appeared in the year 1505, and another three and twenty years after; both in *Italy*. This author omits the cause of the former; but the latter he ascribes to an extraordinary inundation of the *Po*, which happening in the spring, left marshes, that (corrupting) infected the air throughout the summer.

Forestus remarks, that from the putrefaction of the water only, the city of *Delft*, where he practised, was scarce ten years together free from the plague, or some pestilential epidemic.[¶] In the year 1694, a fever broke out at *Rochefort*, in *France*, which, on account of the malignant symptoms, and great mortality, was at first believed to be the plague.[**] But M. *Chirac* who was sent by the court to enquire into the nature of it, found the cause to arise from the salt-marshes, made by an inundation of the sea, and observed, that the corrupted steams, which smelled like gun-powder were carried to the town by the wind, that had blown long from that quarter. About two-thirds of those that were taken ill died.[††] The fever raged in *June*, *July* and *August*, and then ended upon a great fall of rain, which purified the air, and refreshed the water.

I might adduce many instances of malignant fevers, occasioned by the putrid *effluvia* of marshes, from other authors; but as those already mentioned are sufficient to prove what has been advanced, I shall observe upon the whole, that the *bilious*, or remitting and intermitting fevers of low and wet countries, may be considered as *species* of the malignant or pestilential fever; since a high degree of these have been seen with all the virulent symptoms peculiar to this class of diseases. * In general it may be remarked, that the putrefaction of animal or vegetable substances in a dry air, is most apt to produce a malignant fever of a continued form; whereas putrid *effluvia* in a moist atmosphere, have a greater tendency to bring on paroxysms and remissions. But the steams of corrupted blood dispose more to a flux, than to any other distemper; for, though some will be seized with the hospital-fever by the contagion of bloody stools, yet I have observed, that for the most part that infection produced the dysentery †.

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[*] Epidem. Lib. iii. sect. iii. referrred to before, p. 194.

[†] Epit. Galen. de Feb. Differ. Lib I. cap. iv.

[‡] Bibliothec. Hist. Lib xiv. cap. lxx. lxxi.

[§] This circumstance of a sudden *delirium* agrees with what was mentioned in the description of the marsh-fever in the cantonements near *Bois-le-duc*. Vid. Part iii. ch. iv. § 2

[‖] This is said to be the principal cause of the malignant camp-diseases in *Hungary*.

[¶] *Observat. lib.* VI. He adds, that the magistrates, upon his representation of the cause, erected a wind-mill for moving and refreshing the water. At that time *Holland* was much more liable to inundations, and the stagnation of water, than it is at present.

[**] Traite des Fievres Malignes : V. Oeuvres Posthumes de M. Chirac. Eloge de M. Chirac par M. de Fontenelle.

[††] In those who were opened, the brain was found either inflamed, or loaded with blood.

From this view of the causes of malignant fevers and fluxes, it is easy to conceive how incident they must be, not only to all marshy countries after hot seasons, but to all populous cities, low and ill aired; unprovided with common shores; or where the streets are narrow and foul; or the houses dirty; where water is scarce; where jails or hospitals are crowded, and not ventilated and kept clean; when in sickly times the burials are within the towns ‡, and the bodies not laid deep; when slaughter-houses are also within the walls; or when dead animals and offals are left to rot in the kennels, or on dunghills; when drains are not provided, to carry off any large body of stagnating or corrupted water in the neighbourhood; when flesh meats make the greatest part of the diet, without a proper mixture of bread, greens, wine or other fermented liquors; from the use of old and mouldy grain, or what has been damaged by a wet season; or when the fibres are relaxed by immoderate warm bathing. I say, in proportion to the number of these or the like causes concurring, a city will be more or less subject to pestilential diseases, or to receive the leaven of a true plague, brought into it by any merchandize. I shall add a few instances in confirmation of these observations. * * * * * *

In the account of the epidemic malignant fever of *Cork*, in *Ireland*, we find the cause ascribed by the author to a concurrence of these circumstances, the moisture of the air, the impurity of the water, the infection of an uncommon number of slaughter-houses, and the offals left to corrupt in the streets, joined to the immoderate quantity of flesh-meats eat by the poorer people, without bread or fermented liquors, during the victualling season.

Forestus informs us of a plague (rather a pestilential fever), that raged at *Venice* in his time, owing to the corruption of a small kind of fish in that part of the *Adriatic*. And the same author quotes *Montanus*, for a description of the pestilential endemic fever at *Famagusta*, in *Cyprus*, arising in summer from the corruption of a lake in the neighbourhood. This distemper we find taken notice of by *Fracastorius*, and allowed to be the same with what he calls the *lenticulæ*, or *puncticula*, since known by the name of the *petechial* fever.

The fibres of the body were remarkably tender and the bowels were either suppurated of mortified.

* Part iii. ch iv. *l.* 2. 3.
Part iii. ch. 6 §. 3.

† SCHATA de Feb. Castrens

‡ Observat. lib. vi. obs. VI. ix. schol.

History abounds with examples of pestilential fevers, added to the other miseries of a siege: nay, there is scarce any instance of a town being long invested, without some fatal malady of this kind. Sometimes it may be owing to the filth of a place, crowded with people and cattle brought in for shelter; as it formerly happened both at *Athens*[*] and at *Rome*[†]. At other times the sickness has been occasioned by corrupted grain[‡], and meats long salted becoming putrid."

THE CALCUTTA AIR.

It must be no small satisfaction to the present Government to rescue CALCUTTA from its pestilential state. For what medical man who sees the people thus die from these internal mortifications after fever, who sees this, (populous city,) continue to this day, "unprovided with common shores, and with streets narrow and foul," "its burials within the town, and bodies not laid deep, "with dead animals and offals left to rot, and drains not provided to carry off stagnated corrupted water," &c. can doubt that the air of the city causes its fevers and fluxes and its indigenous true plague THE CHOLERA?

"If INDIA is to be governed by Englishmen, it should seem a matter of great political importance to render the seat of its government a place, where Englishmen having the usual constitution of their race can live in the full possession of their faculties and vigour, *the first thing therefore is to remove from it its present pestilential character*." (Report of Fev. Hosp. p. 242.)

Yet it is easy to pass at any time in five minutes from the palatial parts of the City of Palaces, to the pestilential; nay, from Government house itself, to the most offensive and abominable quarters. So that we, wise men of the East, act with a wisdom in this matter of draining and clearing away stagnant filthy pools, very much like the Ostrich, who pushes her head into a bush, and seeing not the arrow which is already winging its flight, dreams that *she is* safe. We build good houses and keep them clean. But this matter of keeping *a pure air* is subjected to a law of PROVIDENCE, (seen in many other ways, by those who look for it,) that as no man can do extensive good to his neighbour without its being reflected upon himself; so no man, no set of men, can be indifferent to their neighbours' good, nor neglect their welfare, without its being reflected back upon them, sooner or later; especially upon them who neglect to provide for cleanliness and comfort of the poor. Nearly ten years ago the Municipal Committee speaking of the "poor of Calcutta," say of them, p. 117. what is just as applicable now—

"But when it is considered what they are—*that they are placed on ground nearly a marsh*—thickly surrounded with other huts *to the exclusion of a free circulation of air*—with walls of single matting—within which the patient lies very generally on a mat, sometimes on a settle, placed on the earthen floor, which is raised *a foot or two above a ditch filled with stagnant and foul water*, which closely surrounds it—little more protected than if lying in an open shed, from the influences of the atmosphere, in a climate where its changes are remarkably sudden, violent, and baneful, and such is *the density of noxious nightly exhalation, lingering over the surface of the soil, that frequently till sometime after sunrise nothing is visible* at a *less*

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[*] Diodor. *Sicul.* Bibliothec. Hist. Lib. XII. cap. xlv.

[†] Tit. Liv. anno U. C. 291.

[‡] Jul. Cœsar de Bell, Civ. *Lib.* ii. viz. in his account of the seige of Marseilles.

height than five or six feet above it—the first thing desirable in attempting the cure even of chronick disease would be the patient's removal into a good house, in a better situation."

It might have been added that the *people in the city usually place their beds over these filthy drains and sleep there.* I have seen them asphyxied with cholera, I believe, as a consequence. The evil effects (i. e. diseases,) are proportioned to the number of these drains and puddles. Can old Goa, or Bombay, or Poonah even, can Aurungabad, Cheetore, Ajmere, or Jaypore, or any of the military stations in India; can the old Indian cities of Delhi, Agra, or even Bindrabun and Benares, shew any thing so admirably adapted for generating and propagating *cholera, fever* or *typhus,* as the sinks of filth which abound in our City of Palaces, the metropolis of her Majesty's Eastern Empire? Having seen those cities I concur with MR. MARTIN whose enlarged views, accurate knowledge, and untiring zeal in a most benevolent cause, ought ever to be gratefully remembered, that it has *all the worst faults of the worst Indian cities.* For the poor this is a city of death. And but that Calcutta pours out its working population to sleep in the adjacent villages, it would in all probability soon prove the *city of the plague;* for it is eminently fitted to receive the leaven of a true plague,* I heartily hope that this year 1848 will witness the beneficial operation of "*an act*" of the Government to effect that which nearly half a century ago was declared to be so necessary by that great statesman the MARQUISS of WELLESLEY.

Prevention is better than cure, Health than a hospital.

"So long," says MR. MARTIN, *as we are without a complete system of draining, all else is but palliative;* for if it amounts to a demonstration that freedom from some of the most fatal scourges of the human race, and a gradual amelioration of health, can be traced to the free exposure of the streets of London to the sun and wind, a hard regular pavement, preserved clean by proper scavengers, the construction of common sewers and privies, and the advantage of a flowing stream, what amelioration of the public health may not be expected from similar measures in such a city as this, situated as it is within the tropicks! "DR. CAIUS," he remarks, "the most eminent physician in England at that period, states, that the mortality in London from ague in 1588 was such that the living could hardly bury the dead.

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* "But the interment of all bodies, carried to the Mussulman Burying Ground, at sufficient depth to prevent their being offensive, is a matter of Police, which your Committee apprehend the Magistrates ought to be required by the Government to enforce.

"In regard to the state of the privies, both public and private, in the whole of the Native part of the town, the evidence, without any exception deserving of notice, consists in the representation of a nuisance of the most intolerable and disgraceful description, upon which it is unnecessary for your Committee to do more than refer your Honour to the evidence upon the subject, which will be found in the Appendix.

"In regard to the removal of carcases of dead animals, it is in evidence that this is not attended to so speedily as to prevent their becoming in some cases a nuisance, and that this is one of the many particulars, in which the attention bestowed upon the purity of the streets, and the health and comfort of the inhabitants, requires improvement.

"Upon this evidence your Committee think it is established, that *there exist in Calcutta and the Suburbs nuisances of almost every possible description, some imminently dangerous to the persons and the lives, many prejudicial to the health, and all destructive of the comfort* and convenience of the inhabitants, such as it is the duty of the Police in all well-regulated communities to prevent or remove." Rep. Fev.-Hosp.

Now such is the effect of local improvements on health that ague is almost unknown in modern London."

" Mr. Martin, describing that part of the city occupied by the Natives, says, that the North Division between the Bow Bazar and Mutchooa Bazar comprises perhaps the most dense part of the Native population of Calcutta —that the Upper Division to the north of Mutchooa Bazar is comparatively speaking but thinly covered with habitations, presenting towards the north and *east extensive gardens, large half-dried tanks, and ruinous* tenements. "*It is surprising*," he says, " *how much the condition of the Native portion of the town has been neglected in this great city and its suburbs in which are to be found all the faults of all the cities in India.*"

" The following is the general description of the state of the Native part of the Town in regard to cleansing and drainage given in Observations offered to the Committee at their request by Mr. John Phipps, " after a residence of upwards of forty years in Calcutta." In many parts of this city, and more especially in the most densely populated parts of it not intersected by streets which can be traversed by the scavenger's carts, the drains, many of them merely irregular furrows in the soil without any brick work, are continually left in a most filthy uncleaned state, emitting the most noisome effluvia, doubtless highly pernicious to the health of the inhabitants dwelling in such situations. Perhaps persons long inured to such nuisances become less susceptible of their pernicious effects than others would be. Such sinks of filth and consequent malaria are, I believe, but little, if at all, known to any scarcely but to those who occasionally pass by, but lying for the most part in obscure parts of the city, are not seen by the higher classes. I speak from experience in my perambulations to the abodes of many of the poor, as a visiting member of the District Charitable Society. Contiguous to my own dwelling there have long existed several cutcha drains grievously offensive. There are many vacant premises in different parts of the city in ruins, choked with jungle, rank weeds, and filth deposited by natives; there are also several dirty tanks in different quarters which are also great nuisances from not being cleaned out. The Mehters' tatties (i. e. public necessaries) are likewise an abominable nuisance."

" Dr. Graham says, that it is impossible for the drains to be in a worse state than they are at present; rudely constructed without any knowledge of the principle of draining, the centre of the conduit being in many places below the level of the extremities—that even on the Chitpore Road, the drains are so useless after a heavy fall of rain, as to render a canoe the preferable mode of transit—that he has observed the road impassable after a fall of less than an hour's duration. *He considers these Drains as the hot beds of disease*—that the consequence of their state, and the want of ventilation is of course disease, oftentimes to an alarming and distressing extent— that the suburbs, nay, indeed, the entire Native Town, must be considered unhealthy from inefficient or rather no drainage, tainted tanks and an external mass of animal and vegetable matter in a state of decomposition surrounding them."*

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* The able reports of my esteemed friend Dr. Strong, abound with illustrations, of the effects of bad air upon the health of the inhabitants of the suburbs and town yet he seems to think that *as a locality* it is not unhealthy. He says " always making an exception of the broad belt of dense jungal, dirty tanks, jheels, luxuriant swards and

DISEASES OR CONSEQUENCES OF CALCUTTA AIR.

A vast number of the preparations assembled in the museum which shew alterations in the organic structure of the brain, heart, blood vessels, lungs, air passages, liver, spleen, kidneys, and digestive apparatus, as well as eruptions and alterations seen upon the external surface, (tumours, skin diseases, &c.) are either direct, or remote consequences, of the impure air of Calcutta. This work therefore is mainly taken up in recording the *effects of Calcutta air;* since these specimens were derived chiefly from the dissecting rooms of the Medical College of Calcutta, in which by the end of the present season there will have been dissected about 4,000 bodies of the poor of Calcutta. We have seen that typhus fever was produced in a night by the *bad air* of 'THE BLACK HOLE,' and plague also. It has been pretty generally admitted ever since the time of ALEXANDER TRALLIANUS that putrid fevers may have originally been intermittents and have degenerated. Indeed he has given the symptoms by which the transition is marked*. No one disputes that every form of intermittent fever prevails in Calcutta and occasionally becomes remittent, whilst few will be disposed to doubt their origin in *Malaria,* If this be so, who can define the extent of organic disease induced by them ?

Most valuable evidence however was furnished to the Committee, as to the extent of the evil by my excellent coadjutor PUNDIT MODOOSOODUN GOOPTO † whose eminent success in the Calcutta Medical College in engag-

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swamps, which exist close upon and beyond the Mahratta Ditch, and extend all round the city, and which formed the more immediate object of my communications with the Governor General, I am of opinion that the sudder station of this district is among the most healthy of any in Bengal and I much question whether there is any Bengal Civil station where the public health will be found better than at Allipore."

* Notæ febris ex putredine.

In primis sanè scire conuenit, febres quæ ex putredine oriuntur, non solum à precedente causa, sed etiam ex Diariarŭ febrium degeneratione originè habere. Cognosces aŭt febrium degenerationem ex tribus hiscæ notis potissimum . prima sane est ꝑ febris Diaria que præcessit, non in purum desinat interuallum : secunda quòd status non fiat ad tolerandum facilis : Tertia quòd status non desinat madore aut sudore. Hæc sunt indicia manifestissima, quód febris Diaria in putridă transierit. At in qualem febris speciem degeneratura sit, hac ratione. & coniectura colligere, & internoscere oportet, Si namque ; pallidus æger fuerit, vigiliis torqueatur, curis afficiatur, & etate floreat, scito bile totă Tertianam excitasse febrim : sin aut albus, & vita ociosus existat, Quotidiană esse putato, quemadmodŭ etiam si plumbei caloris, Quartană. Atque ; hæ sanè notæ sunt febrium Diariarŭ, quæ in putridas degenerarunt. ALEXANDRI TRALLIANI, lib xij. p. 551, Edit. Argentorat. 1549.

† *Modoosoodun* Goopto Kobeeruttan, who had practised medicine in Calcutta for 12 years among the Native population, and was educated in the Sanskrit and English College for six years, and was afterwards Professor of Sanskrit Medicine there, having been assistant to Dr. Tytler and Dr. Grant for the last two years, during which he attended their Lectures upon Anatomy and the Theory and Practice of Medicine and Surgery, stated, that his practice had been among the respectable, the middle, and the poorer classes of Natives, most among the middle classes,—that he had seen a great deal of the diseases of the lower classes—that he thought he could give the Committee a pretty accurate and full account of the diseases prevalent among the Natives in Calcutta—that fevers are the most prevalent diseases ; bilious, remittent, and intermittent —that enlargement of the spleen is the general termination of the two last descriptions of fever—that diarrhœa, dysentery, dyspepsia, rheumatism, and venereal disease are the most prevalent diseases in the town, among the Native population—*that there are very few inflammatory diseases*—that the fevers, except the intermittent are dangerous

ing both Hindoos and Mahomedans in the study of anatomy by actual dissections, has been repeatedly and honourably acknowledged. The evidence is most valuable both from the high character of the Baboo, and from his extensive means of information ; and it has now the strong confirmation of morbid anatomy, for he has witnessed the dissections at the College for 12 years. Since the dissections have been under my superintendence the results have been registered by him at my request : and the following is one record. I have endeavoured both in my lectures, and in the dissecting rooms to instruct the students how to make correct and comprehensive registers of pathological facts. For observations well recorded, derived from the latter source may benefit all INDIA. The materials are now so abundant in the museum, that a distinct course of lectures might be given upon morbid anatomy, were it to the higher class of students only, who as monitors would then become more able observers of the morbid changes in the dissecting rooms. The Calcutta air will, I fear, long continue to afford abundant materials for study ; whilst the prejudices of the natives *in most other parts of* INDIA render observations after death elsewhere almost impossible, after the students leave College.

REPORT FURNISHED BY PUNDIT MOODOSOODUN GOOPTU, 1847.

In the months of August, September, October, and November, the most prevalent diseases amongst the natives of the Town are the remittent and intermittent fevers, dysentery and cholera.

In my private practice I witnessed rapid destruction of lives of several of my patients after an attack of the above-mentioned fevers and dysentery. The symptoms that were presented from 3rd to 5th day were the hiccup, cold perspiration, small and rapid pulse, diarrhœa and delirium ; therefore it led me to believe that the destruction was caused by mortification or gangrene of some of the important organs, such as the brain, lungs, liver, intestines, &c. which are often seen in bodies dissected at this season.

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to life, and certain to be fatal if not attended to medically—that the intermittent fever unless it produces diarrhœa, does not produce an enlargement of the spleen ; but if it is attended with diarrhœa it almost always produces an enlargement of the spleen—that the diarrhœa following intermittent fever, is generally fatal, if not medically attended to —that the enlargement of the spleen is not generally fatal of itself ; but if not cured produces dyspepsia, œdematous swellings of the legs, and hands, and loins, and anasarcha, which are fatal—that dysentery is always dangerous, and if not medically attended to in time always fatal—*that nearly two-thirds of the Native population in the town have dyspepsia*—that it is not of itself fatal, but produces debility, which predisposes to other diseases, diarrhœa, dysentery, and piles—that rheumatism is very frequent—that it often arrives at a height among the labouring classes to prevent their obtaining their bread—that the children of the Hindoo inhabitants of Bengal are generally weakly, and that they are subject to several diseases ; hooping cough, which he considers in this country not an infectious disease dyspepsia, diarrhœa, dysentery, and all the fevers before mentioned—*that he does not see in the town of Calcutta, any children that are in perfect health.* ——— That he thought that the *circumstances he had mentioned contributed to produce cholera*—that there are many small private tanks which contain bad water and produce miasmata, and many old tanks filled up with filth, which causes a bad smell for four or five months, and is injurious to the health of the neighbourhood—that he considers the dust injurious to health—that it produces cough and ophthalmia—that there is much ophthalmia in the hot season from the dust—that the public privies are not properly cleaned—that there are many of them, and that this is injurious to the comfort and salubrity of the town.

To me it appears that the great and important cause of these diseases are the malarious exhalations from the filthy and stagnated drains of the town during this season of the year. Worst cases are from worst places. These diseases terminate fatally chiefly amongst the poorer class of the population owing to their bad circumstances and the want of proper medical aid, even those who escape, suffer extremely from the chronic organic diseases. These organic diseases too, prove fatal during the months of December. January and February, consequently the subjects brought into the dissecting rooms of the Medical College during these months, are for the most part victims to these diseases now become of the chronic kind: those that are brought towards the end of February and the beginning of March are mostly of cholera cases, or acute diseases.

The number of subjects brought into the dissecting rooms of the Medical College from the year 1837 to 1847, nearly amount to 3,500. The following is a list of the supposed diseases registered by order of Professor Webb, (and represent very fairly the dissections of other seasons) during the dissecting season of the years 1846 and 1847, from 460 subjects.

	No.		Remarks.
Remittent Fever,...	40	in 10 subjects,	Fulness in the vessels in the brain, serum was found in the ventricles.
		„ 5 ditto ..	The brains were in state of gangrene.
		„ 2 ditto ..	Matter was found in the lateral ventricles.
		„ 9 ditto	The lungs conjested and infiltered with pus, 5, gangrene of the lungs.
		„ 9 ditto	The liver and spleen were highly conjested, disease of the heart, arteries, and polype.
Acute and Chronic Dysentery,	60		Upon opening the abdomen in some subjects effusion of serum and lymph. In others the omentum adherent to the large intestines, the mucous coat was shaded in different parts. Several ulcers in the course of colon. In other, the colon in state of mortification and gangrenes. The internal coat of the large intestines highly inflamed. In some cases they were full of pus, and in some parts in sloughing state.
Intermittent Fever accompanied with organic diseases,	175		Enlargement of the liver and spleen, abscess in them, gangrene of the liver. The liver found disorganized with tubercular formations. false membranes on the heart and peri-cardium, ulcerations and other disease of arteries, ascites, anasarca.
Cholera, ...	100		All the internal viscera were congested with large quantity of blood. the veins full. the muscles were congested, the vessels of the brain were full; the blood fluid, black, like tar.
Diarrhœa, ...	20		The mucous coats of the intestines were found quite pale, and bloodless, and very thick, in some parts: in others they were somewhat softened, and discolored. and congested; in some parts patches were found, and the bowels were enlarged.
Rheumatism.	20		Ulceration of joints, ankylosis, tubercular disease of bones, and psoas and lumbar abscess, serous effusion, hydrops pericardii, &c.
Phthisis, Chronic Bronchitis	13		Secondary venereal affections. (10)
Sexual............	32		Abortion. 7. Puerperal fever (10). gangrene of womb 5.

There is one observation in the Baboo's evidence which is peculiarly illustrative of the effects of Calcutta air, namely *the sickly appearance of children.* As nutrition is rapidly going on in young animals, they require a proportionate quantity of *pure air* to combine with elements of their food in the formation of growing tissues. They will in consequence of the quantity of food they eat, and their quick respiration require larger quantities of pure air than adults do. Lacking this, deranged nutrition, often denominated fever is the inevitable result. It is generally fever of a continued type. Often it is fever of the congestive typhoid type, and if not producing (as DR. KINLOCH KIRK in his essay already alluded to, supposes) yet certainly accompanied by a variety of what are called chronic diseases. Chronic rheumatism, I have seen in children of European soldiers living *under* the ramparts of Fort William, produce ulceration of the ankle joint, and in East Indian children, ulcerations of the hip joint. Chronic bronchitis or asthma is certainly another consequence, this as well as rheumatism is frequently met with in the girls of the Government Orphan school, who are miserably over-crowded ; and hence subjected to the pernicious influence of *foul air.* Their dormitory is upon the ground floor, which is constructed with a bomb proof-arch, so that there is no ventilation through the roof, and the openings into one side of the arch are fronted by a wall. At the end of the rainy season the girls sometimes faint away, after a night's sleep (which ought to be " natures sweet restorer") in this impure oven. Diarrhœa and dysentery are also enumerated by DR. KINLOCH KIRK as consequences of this low fever ; as well as scorbutus, hœmorrhoids, sloughing ulcers, opthalmic affections, spleen, enlarged liver, dropsy, and many other chronic and cachectic affections, most of which I regret to say are very common diseases in the Lower Orphan School. The girls' hospital has always presented during the last six years a preponderance of these affections, although the locality of the school is in my opinion one of the healthiest near Calcutta. On the contrary La Martiniere Institution, is *situated in a bad locality,* but the noble dormitories, very seldom allow me to have many patients in hospital, and *there has been only one death among the boys in the Institution during the last six years.* This surely is a most striking fact. Owing to over-crowding the sick, and the previous debility from want of pure air, when the measles attacked, the Government Orphan schools in 1837, twenty three children died of sloughing and mortification, &c. in one month.. But measles have since repeatedly prevailed there without any fatal case, when the measles attacked the boys of La Martiniere not a single dose of medicine was given or required. But when the girls of La Martiniere were attacked, who have not such airy dormitories as the boys, and were besides more crowded, then one girl had inflammation of the heart (endo-carditis with loud *bruit de soufflet* readily heard by attendents even,) some girls had also bronchitis, some dysentery and many diarrhœa, but all did well.

The boys' dormitory of La Martiniere is lofty—and the air is freely admitted to each north and south aspect—the windows very large, lofty and down to the floor, and opposite each other, ensure complete perflation and the air can never want renowal. These facts are most worthy of attention in constructing the wards of the projected Calcutta FEVER HOSPITAL. One hundred foundation boys sleep in one dormitory of La Martiniere, but there is abundance of air and of health, and comfort as the result. Take the same care to preserve a supply of fresh air, and *three* hundred or *five* hundred Native fever patients will do well in ONE FEVER HOSPITAL. I have already mentioned that even the worst cases of typhus fever in Natives never spread infection in fine airy wards at Simlah Hospital. Spleen disease has too often proved fatal upon the ground floor hospitals of the Government Orphan schools—but at La Martiniere every case has been cured or so much reduced in size that debility and not the state of the spleen has led me to give change of air. Mortification has carried off most of the children who have died since the Orphan school hospitals have been under my charge, the treatment of fever cases in a ground floor is very unsuccessful in Calcutta, whether of Europeans, or East Indians.

The following is MR. EGERTON'S report (as Surgeon) upon—

THE EFFECTS OF OVERCROWDING CHILDREN IN BENGAL.

"By the returns it appears that the number of cases treated in the present year, 403, exceeds that of the former by 28. Our Hospital accommodation having in the mean time been reduced more than one half, by the making over of the girls' compound containing the *larger* hospital, to the purposes of a cutcherry. It will be seen by referring to the return for the present year that during the months of January, February and March only five deaths occurred, namely one of consumption, two of dysentery, one of continued fever, and one of cholera. Then came the measles in generally a protracted and troublesome disease, but by no means a very fatal one, and it may be said to combine in itself cough diarrhœa and sore eyes, with disease of the skin.

The hospital now became crowded and being able properly to contain not more than twenty, was made to contain forty, and sometimes even more, whilst the less severe cases or those approaching to convalescence were sent off to the Surgeon's quarters and placed under the care of Mr. Webster, a lad incapable of taking charge of a case of the slightest importance. The abundance and offensiveness of effluvia arising from so many cases of diseased lungs, diseased skin, purging and having blisters dressed, may be easily conceived, and the only way of meeting it was to keep open the jillmills of the windows day and night. In short ; it would have been almost impossible to breathe with them shut, this of course left us obnoxious to every change of weather. And one morning, which had been preceded by a rainy night, and felt cool and fresh, compared to the previous weather we had experienced, I was driving over to the hospital, greatly rejoicing at the idea of the relief, this change of weather would afford in much-moderating the pyrexia of the measle cases; but great was my disappointment at finding, when I reached the hospital the children approach with sharp coughs. And the north verandah was really a scene of horror, the beds had all been actually wetted with the rain, and two boys, who the day before were fast recovering, were now dying of effusion into the lungs. And now for the first time appeared *gangrene ;* quite unconnected with spleen, and the salivary organs remaining unaffected. The first case was that of a boy, and the disease commenced at the corner of his mouth, he has died ; the other was that of a little girl, and the mortification began upon the labia pudendi, and the sloughs have been so extensive that though she is yet alive, I think it is hardly possible for her to survive the extent of the injury. Gangrene once begun was not likely to leave untouched the spleen cases, and three of them were attacked, and died. Machael Casey, a spleen case, died of general anasarca from extensive visceral disease, in the Surgeon's quarters. The next case of gangrene was in another little girl still alive, and the seat of the disease the labia pudendi. *In short so deteriorated had the health of the children become, by being a fortnight and some a month in a crowded hospital that a mere scratch with a pin would be sufficient to produce sloughing.* The wonder therefore to me is, not that so many children (22) have died, *but* that so many have escaped."

OVERCROWDING NATIVES—ITS EFFECTS.

An absolute *rot* seems to result from crowding Natives *upon the ground.* All of this is accounted for by the necessary impurity of the *lower strata of air*, in warm damp localities, when complete perflation can not be obtained.

In 1837 the mortality among the gangs of prisoners working on the Burdwan road amounting to 1,300 men, was 105 deaths a month,* and as the Pali plague was then raging in the North-west, it was supposed that it had also broken out among these gangs. I was sent down directly by Lord Auckland, then Governor General of India, to take charge of the hospitals, and *report upon the sickness immediately, and directly to himself*—I found every form of death, of gangrene of the various organic tissues, produced among the prisoners from being chained together at night by a single chain running through their ancle irons, constraining them to lye upon the ground close together. 100 men in a shed 100 feet long by 16. Ther. 100°. The sick men even were *strung* like beads, and one man could not be *unstrung*, even if he died, without others too being released. This, it was said, had occurred, but I did not see it—but I saw enough to convince me, that the native Burkundauze of Bengal as he is the most cowardly—is also the most cruel of the Natives of India, and therefore quite unfit to be trusted as a keeper. Then all excretions were passed as they lay, *the stench horrible*, and no escape from it. Their noses were to the ground. Gangrene of the lung—gangrene of the mouth—of the liver—of the bowels—and of the brain was the result. All duly recorded by the Apothecary, under the heads of pneumonia—cancrum oris dysentery, &c. The eye was frequently utterly collapsed from destruction of its coats and consequent evacuation of humours. But what effect *could* medicine have here. But of their brutal Native keepers (the burkundauzes) *not a man was sick.* Very many of the prisoners broke out with a papular eruption very like chicken pox—this was common to the skin and to the mucous membranes. When these broke in the inside of the bowels they left ulcers—and consequently, colliquitive diarrhœa, and dysentery was the prevailing form of disease. I had authority from Government to break up the gangs, and send the men to their zillahs, few however recovered.

The same kind of eruption is repeatedly breaking out in the girls of the Orphan schools, doubtless from the same cause, breathing the air tainted with the exhalations from living animal secretions, very frequently large and deep abscesses form, in the arms, or thighs, or neck, or behind the ears; especially if these eruptions be rashly suppressed; or effusions even take place into internal organs. One child was a whole month insensible from this cause. Another had 110 liver abscess and psoas abscess of both these she quite recovered, see p. Among the prisoners before alluded to, bad food, and want both of food, and of good water were superadded. Only the latter of these evils operates however in the Allipore schools.

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* In Jail it is one to 190¾ *per month*, on an average of 16 years at Allipore Jail. See Dr. Strong's Report, p. 71.

EXANTHEMATOUS FEVERS.

In these, the eruptions usually succeed to a general commotion and heat of the blood, or to greater or less fever, which has been preceded either by the introduction of matter in a transition state, through the skin, (as by inoculation of plague matter, or of varioloid, or syphilitic virus, which we need not consider here ;) or by vaporized transition-matter, being introduced *through the lungs*, as commonly occurs in measles, &c. These minute particles in a state of change, give to other organic atoms the impulse necessary to their commotion, a disorder or disease of the same kind is thus propagated, *contagion* assimilating matter to its own nature. These diseases are eminently contagious. Again matters which ought to have been excreted and are not, may putrify in the blood vessels and cause eruptive fevers. I cannot form any explanation of this more probable than that already given under the head of LENTOR OF BLOOD p. 199* and that at p. 219* plague and typhoid eruptions originated in circumstances nearly similar, and broke out in the surviving *white* prisoners. In health, the capillaries, which constitute *the fabric* of our bodies, owing to their minute subdivision, admit of such a proximate contact of organic atoms, that their mutual and vital affinities come into play, aided most likely by the *catalytic* action of the blood corpuscles. In disease these minute laboratories of nature have their proper action subverted, hence we have either *no vital affinities* exerted, or these are insufficient *to stop the momentum* which according to SUSHRUTA and BARON LIEBIG (see NOTE p. 219*) originates the state of putrefaction, or of decomposition, and transformation ; and becomes in these instances the proximate cause of disease. The first writers upon small pox, known in Europe, RHAZES* and AVICENNA,† classed together measles, typhus, and chicken pox, as originating in a pestilential state of atmosphere, and producing their peculiar eruptions as the result of a fermentation or putrefactive condition in the blood. DR. FRIEND says, "RHAZES was the first writer in physic to assign as a cause, of disease "a sort of an *innate contagion*, a *ferment* in the blood like that in *must*, which purifies itself sooner or later by throwing off the peccant matter at the glands of the skin." (Friend. Hist. Phys. vol. ii. p. 190.) But it would appear that the Hindoos were before the Arabs in this matter also, as they undoubtedly were in their account of the small pox and its associated diseases. SUSHRUTA has the idea of momentum as the cause of putrefaction. Thus he says.

When (wayu) air, (pitta) bile, (kaffa) mucus, and blood become irritated they produce shooting pains in the viscera, such as eructations, thirst, inflammation, loss of appetite, and nausea. They swell like liquors in their state of fermentation. The air is the principal cause of this movement of humours, because it has motive power ; although insensible, it possesses Rujogoona or second quality of nature, which gives energy to every other created body. As a large collection of water forcing the dykes flows in all directions and mixes with other water, so when the humours are fermented they pass from their own receptacles and mix with others.

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* RAZÆ "*Medici admirabilis liber de pestilentia,*" appended to ALEX. TRALL l. xii. p. Edit. 12mo. 1549 Argentorati.

† AVICENNA lib. iv. cap. 8. "*Scias, quod morbillus omnis est Variola cholerica*" see cap. de febribus pestilentialibus et quæ sunt eis homogenea, et variolis, et morbillo, p, 72 Edit. fol. Venet. 1564.

तेषां प्रकोपात्कोष्ठतोदसं चरणाम्लिकापिपासापरिदाहान्नद्वेष
हृदयोत्क्लेदाश्च जायन्ते। तत्र द्वितीयः क्रियाकालः॥
तेषामेभिरातंकविशेषैः प्रकुपितानां पर्य्युषितकिण्वोदकपिष्टसमवाय
इवोद्रिक्तानां प्रसरो भवति तेषां वायुर्गतिमत्त्वात्प्रसरणहेतुः सत्यप्य
चैतन्ये सहि रजो भूयिष्ठो रजश्च प्रवर्त्तकं सर्व्वभावानां। यथामहानुदक
संचयोऽतिवृद्धः सेतुमवदार्य्यापरेणोदकेन वामिश्रः सर्व्वतःप्रधावत्येवं दोषाः
कदाचिदेकशो द्विशः समस्ताः शोणित सहिता वानेकधा प्रसरन्ति।

I owe to my respected coadjutor Pundit Modoosuden Guptu, the above extract from SUSHRUTA. Excellent accounts of small pox are given (probably from SUSHRUTA) at p. 234 of WISE's Hindu system of medicine.

In my explanation of cholera I have hinted at a distinction which I believe obtains, namely, that the blood in cholera has only lost its endosmotic faculty, is not then fermenting nor putrefying, a choleraic state being, I think, a state of asphyxia of the blood vesicles, most *persistent** when arising from sulphuretted hydrogen. But most likely produced by other agents too. If so long persisted in that the blood corpuscles die and *putrefy*, then the commotion or fever which follows is not the choleraic state. But if that fever occasion eruptions, it may originate a real choleraic state in others, in this way propagate itself by contagion. In the fever which follows the cholera, eruptions or rashes have sometimes been noticed both in England and in Russia, such cholera may be contagious. In INDIA, I have only seen purple echemosis, as a result of the typhoid fever supervening upon cholera. On the whole.—

I conclude therefore that infectious diseases, are propagated by a sort of living putrefaction. In plague, in small pox, in measles—the blood is in an active state of putrefaction, or fermentation ; it throws off vital particles in a transition state, and capable of originating that state in blood that has not already undergone such morbid action. Hence cholera is not contagious:* measles and small pox are. Cholera has repeatedly appeared in the Orphan Schools, and in La Martiniere also, but never *runs through* the schools as small pox, measles, chicken pock, and mumps, which infect by matter passing off from the lungs, skin, &c. of the sick, and affecting the blood, through the lungs and skin of the well.

BARON LIEBIG fully reverts to the doctrine of SUSHRUTA, but it originates with him upon distinct chemical and philosophical reasons, he says.—

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* MATTEUCCI says " sulphuretted hydrogen *is the only body* which having acted upon the blood even for a short time *renders this fluid incapable of being acted upon by oxygen*."

"The fact, observed by Magendie, that putrefying blood, brain, bile, eggs &c., laid on recent wounds, cause vomiting, lassitude, and death after a longer or shorter interval, has never, as yet, been contradicted. (Cholera blood applied does the same, if it have time to induce putrefaction.)*

It is a fact, that the use of several kinds of food, as flesh, ham, sausages, in certain states of decomposition, is followed in healthy persons by the most dangerous symptoms, and even by death.

These facts prove, that an animal substance in a state of decomposition can excite a diseased action in the bodies of healthy persons; that their state is communicable to parts or constituents of the living body. Now since, by products of disease we can understand nothing else than parts or constituents of the living body, which are in a state of change in form or composition, it is clear, that by means of such matters, as long as this state continues, *as long as the decomposition has not completed itself the disease will be capable of being transferred to a second or third individual.*

Moreover, if we consider that all those substances or causes, which destroy the communicability of contagions or miasms, are at the same time effectual in checking all processes of putrefaction or fermentation ; if daily experience shews, that, under the influence of empyreumatic substances (of wood vinegar, or pyroligneous acid, for example), which most powerfully oppose putrefaction, diseased action in malignant ulcerated surfaces is totally changed ; if, in a number of contagious diseases, for example, in typhus, an almost never-failing product of putrefaction, namely, ammonia, free or combined, is observed in the air, in the urine, in the fœces (as phosphate of magnesia and ammonia), it appears impossible to entertain any doubt whatever as to the origin and propagation of many contagious diseases.

Lastly, *it is a universal observation, that* " the origin of epidemic diseases is often to be traced to the *putrefaction of large quantities of animal and vegetable matters; that miasmatic diseases are endemic in places where the decomposition of organic matter is constantly taking place, as in marshy* and moist localities; that they are developed epidemically under the same circumstances after inundations; also in places where a large number of people are crowded together with insufficient ventilation, as in ships, prisons, and besieged places." (Henle, Untersuchungen, p. 45.) Again, p. 57: "But we can never so surely predict the arising of epidemic diseases, as when a marshy surface has been dried up by continued heat; or when extensive inundations are followed by intense heat."

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* There is I believe no doubt now upon this *questio vexata* among Indian practitioners, whether European or Native. None believe here in the contagious nature of cholera.

EXPERIMENTS ON ANIMALS WITH THE BLOOD OF CHOLERA PATIENTS BY DR. NAMIAS, OF VENICE.

Upon opening the body of a man, aged fifty, who had died in the cold stage of cholera after twenty-four hours' illness, at the hospital of St. Daniel, the blood in the cavities of the heart was found to be black and congealed together, with one or two polypous concretions. A portion of the congealed blood, of the size of a strawberry, was inserted, without causing much suffering, under the skin of the thigh of an old and fat rabbit. The fur was shaved off, and an incision having been made through the skin, it was separated by the handle of the scalpel from the cellular tissue beneath ; and into the cavity thus formed the blood was introduced, and the wound was then carefully closed with sutures. This mode of inoculation was followed in all the experiments.

Exp. 1.—Five days after the operation the rabbit appeared ill, its evacuations were less solid than usual, and a whitish glutinous matter was observed upon the ground. The animal was found dead on the eighth day. *The blood of the heart was black and grumous, with some fibrinous concretions ; the bladder was full of urine ; the injected blood had pervaded the surrounding tissues;* the lips of the wound had their normal consistence ; the internal surface of the whole of the skin was covered with blue spots of ecchymosis ; but the rest of the organs exhibited no alteration.

Exp. 2.—An equal quantity of the blood of this rabbit was injected in a similar manner into the thigh of a grey female rabbit. It was found dead in twenty-four hours afterwards, with the same appearance of the whitish matter upon the ground. The body, when examined, exhibited similar results as on the former experiment.

Hence, according to all the rules of scientific investigation, the conclusion is fully justified, that, in all cases where a *process of putrefaction precedes* the *occurrence of a disease, or where the disease can be propagated by solid, liquid, or aeriform products of disease and where no nearer cause of the disease can be discovered, the substances in a state of decomposition or transformation must be regarded as being in consequence of that state, the proximate causes of the disease.*" Baron Liebig. *Organic Chemistry.* Part I. p. 205.

CONCLUSION.

We have traced out perhaps sufficiently this great principle *that we can have no respiration quite perfect unless the blood be quite perfect in its constitution*, and that the blood cannot attain to health without pure air; again we can have no circulation quite perfect in the capillaries, where all the elaboration and elimination is carried on, unless we have quite perfect respiration. We arrive at equal derangement of vital actions whether we begin with error in the systemic capillaries sufficiently general, or error in the pulmonic capillaries sufficiently general. Hence the broad steady light of inductive reasoning is reflected upon disease: for the secretions whether cutaneous alvine or urinary are plain indices of the state of the vital functions, in connexion with the pulse; whilst beyond all other necessities pure air for respiration is all important, for its imperfect conditions render imperfect every part or particle even of the entire bodily machine. Boerhaave very justly said. "Vix ullam in corpore toto particulam superesse, cujus non aliquid in negotio respirationis partes sint."

These organs' blood-vesicles, blood-vessels, air-vesicles, air-vessels, and their central hearts, cannot be separated *pathologically*; nor indeed physiologically either: they are parts only of one apparatus, one and the same *air-machine.* Obstruct this in one part, it is felt in every part, obstruct air vessels, you obstruct blood-vessels, obstruct heart and you obstruct lungs, obstruct air-vesicles, and you obstruct blood-vesicles.

Thus we have seen that bad air will produce tubercular disease of the lungs, so that here again we have completed a circle of reasoning upon the diseases of the respiratory organs comprehending, air-vessels, blood-vessels, and blood. That the mechanical affection tuberculosis of the lungs, must be followed by alteration in the structure of the heart we have also shewn. We might say with 'Poor Richard' for want of fresh air the blood was stopped, (in capillaries of lungs) for want of fresh blood the capillaries were stopped (with tubercle) for want of free capillaries, the cells were stopped in lungs, (tuberculosis) for want of free air cells the veins were stopped, (ascending and descending cavæ,) for want of free veins the auricle was stretched, or stuffed, (on right side of heart) for want of a free auricle the ventricle was stuffed, and dilated; for want of free passages in the right heart, the lungs were universally congested, and when sufficiently embarrassed the breath is at last stopped,

. . and This is the End.

PATHOLOGIA INDICA.

PART II.

MEDICAL PATHOLOGY.

PATHOLOGY OF LIVER AND BILIARY APPARATUS;
PATHOLOGY OF THE SPLEEN;
PATHOLOGY OF KIDNEYS AND URINARY APPARATUS.
PATHOLOGY OF GENERATION.

> "Morborum curatio morborum scientiam cognitam ponit. Quamobrem pathologia medicinæ practicæ præmittenda, quia nexum morborum cum causis quæ morbos creant et symptomatibus quæ morbos sequuntur, *una indicat pathologia.*"
>
> C. Prys van der Hoeven.
>
> De Arte Medica. Lib. i.

DIVISION—LIVER AND BILIARY APPARATUS.

INTRODUCTION

TO THE HEPATIC SYSTEM.

In order to investigate accurately the amount of diseased action in any organ, it is absolutely necessary that we should first understand, the nature and conditions of its operations or functions in health. But with regard to the liver, and its secretion the bile, although from the earliest times they have engaged the deepest attention both of philosophers and physicians, it is only very lately that we can be said to have attained, to any really satisfactory knowledge respecting them. Among the ancients, the views of ARISTOTLE, and of GALEN, appear to have been most influential. For many ages they were universally appealed to, and are occasionally quoted, both by Greek and Arab authors, as in opposition to each other (as to the liver being the origin of the veins.*) In considering what these great men have written, and comparing their views with more modern authorities, we cannot but percieve that the old masters possessed a far deeper insight into these abstruse physiological questions than the writers who succeeded them in modern Europe.

ARISTOTLE takes a wide range of the viscera generally ; he concludes that the liver, spleen and kidneys, comprehending in their structures, so great an accumulation of blood vessels, which would otherwise hang pendulous, and loose, must be designed for purposes of excretion : (GALEN arrives at the same conclusion, from considering the extremely minute subdivision of the vessels,) that in fact these organs unite, first, in a common object of purging the blood from useless matter :—and, second, that the spleen is associated with the liver, for they both assist in the assimilation of food, and the formation of blood. He says those reptiles, or other animals, that have spumous lungs (large cells see No. 389) have no spleen and little excrement, they have no bladder, perhaps, no kidneys ; those however whose lungs are more fleshy (cells small, multiplied) have a necessity for additional organs as quadrupeds, to purify the circulating fluid.†

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* " Creauit Deus hepar, ut esset uas generationis sanguinis et origo uenarum ; tamé in hoc dissentiunt ARISTOTELES et GALENUS." *de Anat. Viv. Galeno attrib. fol.* 50 *Edit Frob. pars.* III. GAL. OP. OM.

† *Op.* ARIST. *de part. animal. lib.* iii. p. 769. Edit. 1605. Geneva.

Galen appears to have adopted all these views of **Aristotle**, but added to them some which were peculiar to himself. The most remarkable of these was making the liver the origin and root of the venous system;—of the veins in general. This view, which was founded upon the peculiar distribution of the portal and hepatic veins of the liver, was adopted by all subsequent anatomists until **Harvey** discovered the circulation. We find the great **Vesalius**, in 1550, dissecting out what he calls, the origin of the vena cava, and tracing it (in an excellent plate referred to by **Haller**) through its innumerable ramules in the liver. The Arab writers upon medicine were all **galenists**. But we can hardly comprehend the wide spread influence of his opinions unless we follow him through his physiological researches. It will not be unprofitable should we here briefly retrace them.

In his book—*De Usu Partium*, (*Cap.* 12, *p.* 275*) he first clears away those constituent structures of the liver which cannot, inasmuch as they are common to other organs, be considered its peculiar structural, and functional organism. He rejects therefore, the great veins, the arteries, the nerves, the ducts, and the gall bladder, and the investing membrane ; and refers us (quærendum q. quænam tandem sit hæc *particula*, quæ uenarum est principium, et generationis sanguinis causa) to the glandular structure. (Restat ergo id, quod est uelut caro hepatis (quod sane'est, et propria substantia uisceris) esse primum sanguificationis organum et uenarum principium.) Beyond this point, but it is a great point, as he had no microscope, he could not investigate the structural anatomy of the liver. He could only reason conjecturâlly. He saw a system of vessels beginning in the stomach and bowels, ending in a fleshy mass, resembling a dried clot of blood ; he saw another system of vessels take their origin in this molecular mass, growing larger and larger, till their great trunks opened into the vena cava; just as this vessel enters the heart. He reasoned thus, these first vessels (the portal) draw up from the alimentary canal the crude elements of blood derived from the food, which are assimilated to blood, and are perfected as such, in the molecular structure of the liver. Some portion is separated as bile, the rest is taken up by other vessels, (the hepatic) as elaborated blood, is poured into the heart, is ærated in the lungs, and when mixed with air, is transmitted by the left heart and arteries.

This is the literal meaning of this inquisitive anatomist, and truly great physiologist—**Galen**. It comprehends and combines the broad but indefinite theory of **Aristotle**, with the more recent discoveries, if they may be so called, of modern writers. Thus we find in the British and Foreign Medical Review.† "The blood returning from the intestines is charged with a large quantity of crude materials absorbed from their contents ; in *the invertebrate animals the mesenteric veins are the only absorbents*, and even where a special system is evolved, it is well known that they still retain, in a great degree, their original function. Now there is good reason to believe that a portion of these crude materials is eliminated by the liver ; so that the blood returning from the intestines undergoes a purification before it enters the general current of the circulation, in the same way as the blood which has received the chyle, is submitted to the action of the lungs before it passes again to the system.

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* Edit. Frobeni Gal. Op. Om. 1562.

† Rev. No. xiii

We will now look at the opinions of the moderns, and always excepting **John Abernethy**, whose strong common sense gave to the liver at least an important office in the œonomy of man, and immortalized the word '*bilious*,' so that there are few diseases to which our patients now a days think it altogether inapplicable; I say with this exception, how meagre, and inadequate were their conceptions upon the physiology of the liver, until animal chemistry, and the microscope, were brought to bear upon the subject.

Blumenbach contents himself with saying that the bile seems to act as a stimulus to the peristalic action of the intestines, " omitting other less probable uses assigned to it*." **Richerand** goes a step further. He says, " It is to be confessed, however, that the enormous bulk of the liver, its being found in almost all animals, and the quantity of blood carried into it by the vena-portæ, compared to the small secretion there is of bile, lead to the belief, that the blood sent to it from all the other organs of digestion, undergoes changes there, on which science possesses, as yet no certain data, though the chemists maintain, that the liver is in some sort the supplementary organ to the lungs, and assists in clearing the blood of its hydrogen and carbon."† **Baron Liebig**, the most philosophical chemist of our day; equally eminent also, as a pathologist and physiologist; has proved, that of the bile which is secreted, *a portion* only is subservient to peristaltic action ; since in some animals, the horse for instance, out of the immense quantity secreted, a few ounces only can be detected in the fœces, and in the excrement of some of the carnivora, none whatever. But the bile itself consisting of the products of the transformation of the blood and of the organized tissues (p. 75) returns during the process of digestion into the system, in which it gradually disappears partially or entirely " the combustible elements of the bile * * * ultimately leave the body in the shape of oxydised compounds, and are perfectly capable of being employed in respiration." In the actual process of digestion the biliary as well as pancreatic secretions, though they do not dissolve oily matter, reduce it to precisely that state of fine subdivision in which we find it in the chyle. **Professor Matteucci's** experiments shew that then, as an emulsion only, it is absored by endosmotic action.

By the researches, of another eminent physiologist, it would appear that the liver, is in a most important and interesting sense, the supplementary organ of the lungs; not only clearing the blood of its hydrogen and carbon, but using up the separated dead vesicles, and preparing others for the process of respiration ;—at least so says **Professor Schultz**, in the following account of the birth, decay and death of the blood vesicles. "The larger lymph globules become metamorphosed into the smaller, and round these a filamentous vesicle is seen to be developed, which is at first perfectly globular, colorless, and transparent. In others in a more advanced stage, it is seen that the membrane begins to be coloured, and in this contractility is developed. The lymph globule is closely shut up within the membrane, so that the blood vesicles are in reality formed in the lymph, and their granules are fully developed lymph globules. When the vesicles thus formed pass into the current of the circulation they are quickly subject to further changes. The more frequently they pass through the lungs and are subject to the influence of oxygen gas, the more the size of the granules diminishes until at last they disappear altogether from the vesicles. And in proportion as this change takes place, the vesicles become more deeply coloured, and less contractile, until they are quite darkened, without contractility, becoming *pari passu* specifically heavier than the plasma. By means of the latter property, the vesicles of different sizes may be separated from each other, as when blood is taken into a glass cylinder ; the oldest being the most deeply coloured, and the heaviest sink to the bottom, and the youngest and least coloured, are at the top."

" When the blood vesicle has become incapable of being further acted on by the oxygen gas, it is useless. The colouring matter must be removed *and the residuum, or film be excreted or re-organized.* According to PROFESSOR SCHULTZ *it is in the liver these changes take place.* The absence of valves in the vena portæ, and the slow motion of the blood, are favorable to the precipitation of the old, heavy, useless vesicles from the general current of the circulation, and the more fluid plasma readily extracts the colouring matter of the flaccid films. On a chemical analysis of the portal blood, this plasma is found to be less in quantity, and more fluid, and containing more colouring matter than that of venous blood. This must necessarily be the fact, because the vesicles part with their colouring matter the more readily as they become less contractile. So that in the vena portæ two things take place. 1. The old useless vesicles are taken out of the circulation. 2. The debris or dead films of these vesicles are separated from the blood."

" According to PROFESSOR SCHULTZ's researches, the blood-vesicles have no direct connexion with the nutrition of the body, but are the true respiratory organs of the blood, and subservient to the completion of the process of assimilation. By the absorption of vital air, the granular substance is transformed into plasma, and the colouring matter is the residue of the transforming process. It is by no means necessary that the respiration of the blood should be performed in lungs or gills: any surface may suffice to bring the vesicles in contact with the atmosphere, and in some animals the whole surface of the body is a respiring organ."

" If the old deeply coloured vesicles are not excreted from the circulation as new ones form, the blood assumes a darker tint, and the portal system is congested, because the old vesicles accumulate in the liver, and as such vesicles cannot undergo the necessary changes in the lungs. and carry oxygen into the system, a necessity for increased respiration is excited, and asthma and dyspnœa are developed."

" The last change the blood vesicles undergoes is a moulting. Each vesicle has a cycle of life precisely as each individual animal, and every vesicle has equally its birth, course of developement, and death. The dead debris of each also must, like the moulted appendages of the skin in insects and vertebrata, be thrown off. *The blood purifies itself from them, and the liver is the organ in which their exit from the circulation is made.*"

" Since the vascular system has no direct emunctories through which the moulted debris may be thrown off, *the circulation through the liver pours* *them out into the intestines as bile.* The term vena portæ is prophetic as that vein is a porta, a gate, in more than one sense.*"

I shall return to the views which regard it as purifying the blood in speaking of the kidneys ; merely remarking here, that this discovery of an entirely new set of vital operations, requiring fitting instruments, or organs, may point to probable uses of the spleen, thymus, &c., as well as explain the true nature of many very imperfectly understood morbid conditions, as of cholera for instance, wherein the blood vesicles from exposure to sulphuretted hydrogen become incapable of being acted on by oxygen ; and the return of the secretions of bile and urine, or the excretion of dead vesicles, is the renewal of the blood, or return to health ; and so also in yellow fever. It is probable therefore, that the humoral pathology has been too hastily laid aside ; whilst these investigations of alterations in the *living constituents of the blood,* lead us to far more satisfactory results, than the burning, boiling, and other decompositions of it into elements that bear little relation, or none whatever, to any condition of this fluid in the living body.

It appears probable that besides the offices already considered ;—secretion of bile, (to be again resorbed) and excretion of the recrementious part of the blood, and re-organization of vesicles ; another function, that of assimilation of food may also be assigned to this important organ. DR. COPLAND says,† "there is much reason to infer, that it aids in changing the chyle in the portal and general circulation, into red blood. The extent of aid being, however, doubtful." Lastly if bile and fat be respirable substances‡, as Professor LIEBIG declares them to be, and especially should his beautiful theory of the production of animal heat, be confirmed by subsequent researches, the liver has in all probability, a most material share in the process. Certain morbid phenomena, especially the intense heat which it evolves after *Coup de solcil,* would seem to countenance such a conclusion, as well as the contrary effect, from suspension of the function of the liver in Asiatic cholera, namely gelid coldness.

If we now compare our knowledge of the physiology of the liver with that which the ancients attained to, it will be found that they by reasoning deduced that the liver secreted bile and was a primary organ of sanguification—and we only know this in a more definite and precise manner. We have this advantage over them in knowing *how* it is. After rejecting it for two or three centuries we are coming round again to the opinion of ARISTOTLE that the liver and spleen are associated in the same function, sanguifaction.

Unfortunately, we do not possess many preparations, having for their object to display the structural anatomy of the liver ; there is no demonstration even of its great feeder the vena portæ. By reference to the masterly drawings by J. Bell[*] and of his no less illustrious brother, the late Sir C. Bell[†], it is seen that this important vessel has its roots in the two mesenteric and the splenic veins. Its trunk and branches being distributed through the liver like the pulmonary artery in the lungs ; and equally also, with the design of impressing necessary changes upon the contained blood. In No. 778, this huge sinus is seen naturally injected by the blood itself ; the coagula that have rolled out, being as thick as the finger. It is seen to divide into right and left branches, which course along the centre of the organ. In No. 779, nature herself, by means of a diffused abscess, has unravelled the enormous mass of vessels of which the liver is constituted. And here we again recognize the great portal trunk, and perceive it giving off short thick stumpy branches; every interval being filled up by lesser twigs, to constitute as it were especially, the organ itself. Crossing over these at an acute angle, we see the large branches of the hepatic veins. Their coats thinner, the branches given off at more acute angles, and much fewer in number than those of the portal trunk. In No. 585, a fœtal liver, I have endeavoured to shew these separate sorts of vessels by dissection ; the short, thick, stumpy, artery-like branches of the porta, more delicate coats of the hepatic vein, and the lobules, clustering as though they were grapes upon the vine, when the leaves are fallen. Whilst the elaborate ultimate structure of the organ, that which forms the lobules, is finely displayed by maceration in No. 656. Now we have only to remember, that like as the bronchial arteries, are the proper nutrient arteries of the lungs, and the coronary of the heart, so is the hepatic of the liver ; having no share whatever in its functions, until its blood having passed the capillaries, is with the other dark blood subjected to its renewing action.[‡] All these minute, vascular laboratories, the lobules, are sheathed by a prolongation of cellular membrane from Glisson's capsule ; (which is admirably demonstrated in No. 1552) as if in the developement of the liver from the germinal membrane, this had been carried in with it, like the peritoneal, covering with the testicle.[§]

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* British and Foreign Medical Review.

† Dict. of Pract. Med. p. 718.

‡ Animal Chemistry or organic Chemistry applied to Physiology and Pathology by Professor Liebig, edited by Dr. Gregory. See page 95, 160. 172, 188. &c. Professor Playfair in his abstract of Liebig's report says. "The portion of the report contained an ingenious and important view of the use of bile in the animal economy, the truth of which quantative physiology dare not deny."

This organ therefore which looks the least organic, the least like what it really is, of any in the body, is shewn to be constituted entirely of vessels ; connected by cellular membrane, shooting out so as to leave no intervals like a good thick bush. There are still a third set of biliary vessels, and a canal into which they empty, the hepatic, in order to bring the bile into the intestine, whilst part of it finds its way by a branch canal into the gall bladder. All, however, that is essentially functional in the liver as a gland, is carried on in those clustering ramules which form the lobules;—the minute anatomy of which, has been so well and ably described by **Kiernan**, as to have won the admiration of all anatomists both at home and on the continent.* Nearly all this,is however, too minute to be seen without the microscope. When we look at a frog's liver or a lizard's, and draw its thin edge under the field of the microscope, the circulation of a lobule is very apparent. A thin stream of blood vesicles is seen to eddy round its base and disappears by single files down the centre of the *crater*, light bluish acini appearing in the intervals of meshes. The following is **Mr. Goodsir's** account of the very act of secretion—itself. "He had been able, after considerable difficulty, to verify **Mr. Kiernan's** supposition, that the hepatic ducts terminate by a network within the lobules of the liver. around the intra-lobular veins. But the most important feature in the observations of the author was the detection of the real connection between these ultimate ducts, and the nucleated cells. These he found to be grouped in the form of acini on the side of the duct. Each acinus might consist, first, of a single cell, denominated by the author the *primary* or *germinal cell* of the future acinus ; or, secondly, of two or more cells enclosed in the primary cell, and produced from its nucleus. The enclosed cells he denominates the secondary cells of the acinus ; and in the cavities of these, between their nuclei and cell walls, the bile and a few oil-like globules are contained, as he had already stated in the memoir above alluded to. The primary cell, with its included group of cells, each full of bile, is appended to the side of the remote ducts, and, consequently, does not communicate with

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[*] Bell's Anat. Plate xvi p. 36, Vol II.

[†] "Dissections." Plate iv.

[‡] "The physiological deduction arising out of this anatomical arrangement is, that the *bile is wholly secreted from venous blood*, and not from a mixed venous and arterial blood, as is believed by Muller; for, although the portal vein receives its blood from two sources, viz. from the chylopoietic viscera and from the capillaries of the hepatic artery, yet the very fact of the blood of the latter vessel having passed through its capillaries into the portal vein, or in extremely small quantity into the capillary network of the lobular venous plexus is sufficient to establish its venous character.'—Erasmus Wilson. *Vade mecum*. p. 583.

[§] It is placed " beyond a doubt that the liver in the embryo of the bird is originally developed by the protrusion, as it were of the walls of the intestinal canal."—*Muller* p. 491, vol. I.

STRUCTURE AND MINUTE ANATOMY OF THE LIVER.

* "The following excellent summary of the anatomy of the liver is given by Mr. **Erasmus Wilson** in his admirable work on anatomy. "The liver has been shown to be composed of *lobules*; the lobules (excepting at their bases) are invested and connected together, the vessels supported. and the whole organ enclosed, by **Glisson's** *capsule*; and they are so arranged, that the base of every lobule in the liver is in contact with an hepatic vein (sub-lobular).

"The *portal vein* distributes its numberless branches through portal canals, which are channeled through every part of the organ : it brings the returning blood from the chylopoietic viscera ; it collects also the venous blood from the ultimate ramifications of the hepatic artery in the liver itself. It gives off branches in the canals, which are called *vaginal*, and form a venous *vaginal plexus* ; these give off *interlobular branches* and the latter enter the lobules and form *lobular venous plexuses* from the blood circulating in which the bile is secreted.

"The *bile* in the lobule is received by a network of minute ducts, the *lobular biliary plexus*; it is conveyed from the lobule into the *interlobular ducts*; it is thence poured into the biliary *vaginal plexus* of the portal canals, and thence into the excreting ducts, by which it is carried to the duodenum and gall-bladder, after being mingled in its course, with the mucous secretion from the numberless muciparous follicles in the walls of the ducts.

"The *hepatic artery* distributes branches through every portal canal; gives off *vaginal branches*, which form a vaginal hepatic plexus, from which the *interlobular branches* arise, and these latter terminate ultimately in the lobular venous plexuses of the portal vein. The artery ramifies abundantly in the coats of the hepatic ducts. enabling them to provide their mucous secretion ; and supplies the vasa vasorum of the portal and hepatic veins, and the nutrient vessels of the entire organ.

"The *hepatic veins* commence in the centre of each lobule by minute radicles, which collect the impure blood from the lobular venous plexus, and convey it into the *intralobular veins* : these open into the *sublobular veins*, and the sublobular veins unite to form the large hepatic trunks by which the blood is conveyed into the vena cava"

"Vade Mecum,"—a system of Human Anatomy, by Mr. Eramus Wilson, 3d Edition.—London 1845 p. 383.

that duct, a diaphragm formed by a portion of the primary cell wall stretching across the pedicle. When the bile in the group of included cells is fully elaborated, the diaphragm dissolves or gives way, the cells burst, and the bile flows along the ducts ; the acinus disappearing, and making room for a neighbouring acinus, which has in the mean time been advancing in a similar manner. The whole parenchyma of the liver, then is, according to Mr. Goodsir, "in a constant state of change—of development, maturity, and atrophy ; this series of changes being directly proportioned to the profuseness of the secretion of bile."

Having considered the nature and conditions of the functions of the organ in health, and the apparatus by which its operations are performed, we shall now be prepared to understand, how far this wonderfully complex organic structure of the liver is deranged and spoiled by disease.

The earlier stages of congestion leave no permanent organic change behind. The second stage of hepatic venous congestion, when combined with biliary congestion produces the state called nutmeg liver, as seen in No. 759. In No. 778, we see that highest degree of congestion which precedes abscess; which seems to so gorge all the vessels of the organ, as almost to prevent circulation. The softening and abscess, being nature's attempt to relieve that state, when unequal to effect it by resolution. No. 648, shews the progress of central abscess. No. attempt at stopping it, by encysting the contents ; the great vessels, their coats thickened by inflammation, traverse the cyst. In No. 753, a cyst has formed, but one-third of the liver has been absorbed. Again in No. 157, one-half of the liver is destroyed by absorption, consequent upon abscess. In No. 779 the whole organ is completely disorganized.

Besides these effects of inflammation, we may have the organ choked up, by various heterologous deposits. In No. 169 by tubercular deposition in its cellular structure ; in No. 552 by tubercular deposition in the biliary canals; in No. 214 by fatty deposition, till the liver looks like a piece of soap. In Nos. 187, 185, 186, by cysts containing worms, the greater part of its structure is destroyed. In Nos. 769, 333, 336, by cysts containing hydatids.

No. 583. The cellular sheath of the vessels has undergone chronic inflammation, has become greatly hypertrophied, and by its contractile nature has absolutely strangled the proper vessels of the liver, producing atrophy of the whole organ. In No. 340 the human liver, has thus been reduced to one third of its usual size, and that third, is seen to be impermeable for the most part, even to minute injection.

The gall bladder may be destroyed and choked up by calculi as in No. 189 ; completely obliterated by adhesions, as in No. 334 ; distended to six times its usual capacity, as in No. 215, from obstructon of the ducts ; this is seen in a less degree in Nos. 357, 213 and 600. Both cystic, and hepatic and the common duct also, may be obstructed or obliterated by the pressure of tumors, as is seen in No. 807.

Lastly. *In Natives of* INDIA *cellular degeneration commonly destroys the whole organ.*

PREPARATIONS.

In the Museum of the Bengal Medical College.

DIVISION—LIVER, &c.

Nos. (*Continued from page* 140*)

DEVELOPEMENT.

1055. *Shews developement of the liver in a human fœtus of about four months. Presented by Professor Webb.*

172. *Shews the developement of the liver at about seven months in the human fœtus—also the course of the umbilical vessels.*

1554. *Shews that fusion of the liver forms the only bond of union, when covered by integuments, of two fœtuses* at the full term ; born in Chittagong of Indian parents, and having an exact resemblance to the Siamese twins. *Presented by Dr. Bedford.*

882. *Shews a more complete fusion of the livers, forming the great central organ of an androgynous, monstrous fœtus ; born in Ceylon.*

1563. *Enormously enlarged liver in a Native child about a year old.* The liver is seen to fill nearly all the abdominal cavity ;—and has probably become inflamed, or congested and enlarged, from the propagation of thoracic inflammation through the diaphragm ; since the lung above is *perforated* by gangrenous inflammation, and the chest has been filled with fibrinous effusion. *Presented by Professor Webb*

ADVENTITIOUS HETEROLOGOUS DEPOSITS.

339. *A portion of the free edge of the liver* to shew healthy condition of the organ.

184. *A nearly similar portion of another liver,* to shew a large cicatrix where an abscess has been opened, around which the peritoneal surface is puckered up into folds. Taken from a patient who died of typhus fever. It is singularly discolored, and when first removed from the body, was of a much deeper leaden hue, which has partly disappeared by immersion in spirit.

583. *Cirrosis of the liver in a rabbit.*—The organ generally atrophied by the abundant accumulation of fibrinous tissue around the vessels whilst the recession, or retraction of the fibrinous septa, has given a distinctly tuberculated aspect to its surface. *Presented by Professor Webb.*

585. *Healthy structure of the fœtal liver*, a fine contrast with the last. The vessels are beautifully shewn; and the manner in which the lobules are clustered upon them, like grapes upon the branches of a vine. *Presented by Professor Webb.*

1426. *An injected liver*, the *inter*-lobular veins of the portâ are injected yellow, and are seen surrounding the acini—the *intra*-lobular veins of the hepatic, piercing the centre of the acini are injected blue.—Both these may be seen by the naked eye, the hepatic artery red. *Presented by Tameez Khan.*

1537. *A portion of liver, the organ was enlarged to about three times the usual size, from hypertrophy of the lobules*—Those towards the exterior of the organ are from six to ten times the usual size, some of them nearly as large as peas, and surrounded by *loose* white prolongations of Glisson's capsule, which is also very much developed. The whole organ soft, loose, and flabby to the touch; gall bladder thickened with layers of lymph. *From a Hindoo, presented by Professor Webb.*

340. *A most beautiful specimen of cirrosis of the liver.*—The whole organ is contracted, till it does not exceed in size, two closed hands. It has been minutely injected with vermilion, and the solidification which it has undergone from disease, is thus rendered more apparent.—Some of the lobules are pushed out by the contraction of the intermediate tissue of Glisson's capsule; which has undergone adhesive inflammation. This gives the whole organ, a tubercular aspect. Although there is in reality, not a single tubercle in it; the vascularity of the gall-bladder is very well shown.

656. *Shews the ultimate structure of the liver, by the unravelling of its minute vascular texture*, in a more complete manner than any preparation I ever saw. The vessels were thus left, after maceration had removed the fatty deposition, or degeneration, with which the organ had become affected during life. Not the finest, nor most delicate moss, can exceed in minute subdivision the delicate ramules of the lobules. Even the peritoneal or external surface is seen covered with minute twigs of vessels. *Presented by Professor Webb.*

777. *A smaller portion of the same liver* not so completely unravelled.

1528, 1529, 1530. *These are portions of the liver of a Hindoo brought to the dissecting room, and shew destruction of the lobules throughout the whole organ, by cellular degeneration. Presented by Professor Webb.* This loss of all glandular structure appears to be a consequence of inflammation of Glisson's capsule, which, beginning from without, had implicated the hepatic ducts to a degree that closed their canals. Hard consolidated tissue extrinsically added, is seen to surround several lines in breadth the great divisions of this capsule: that is externally around all the superficies of the liver: and internally, all the grand divisions of the vena portæ. This is more evident from the contrast presented by the hepatic veins. For whereas the portal branches near the centre are surrounded by this consolidated adventitious tissue of several lines in breadth, the hepatic veins even near their termination are free from this. The whole intermediate, or proper parenchymatous structure of the liver, is one mass of cells only; of irregular form, and varying in size; and has an exact resemblance to the section of a sponge. When examined by the lens, no trace of granular or glandular structure can be seen; no lobules, no acini, but simply cell walls, or sections of cells, which were full of green bilious looking fluid: and now after macerating six months, the liver throughout is green as grass. I conclude that this singular result, was effected by the bile, unable to escape through the ducts,(closed, or partially so, by adhesive inflammation,) distending the biliary cells and ducts. In proportion as these became distended by the bile, the interlobular, vascular plexuses became compressed; obliterated, and eventually destroyed: together with the hepatic cells. In this way several lobules are obliterated, and these irregular cells or cavities occupy their places. This is the most reasonable supposition I can form upon a disease common with Natives, but quite new to me, See also Nos. 936. 189. 169.

1531. *Another specimen from a Hindoo of spongy or cellular degeneration of the liver, at an early stage. Presented by Professor Webb.*

1393. *Liver affected with cirrosis.* From the extension to it of peritonitis. The organ is contracted and indurated: the gall-bladder thickened, and contracted from deposition of lymph. *Presented by Dr. Green, of Howrah.*

1024. *A fine specimen of apoplexy of the liver.* The extravasated blood being generally in round dark masses. The whole organ presenting a fine illustration of hepatic venous congestion, from the stagnation of blood in the right side of the heart; the lungs and brain being apoplectic also. The lobules of the liver are seen to present a dark centre, and light circumference, the intralobular vein and its feeders congested, the portal vein (inter-lobular and its feeders empty (see p. 91) from an European sailor. *Presented by Professor Webb.*

899. *A portion of the liver excised from a Hindoo. Presented by John Macpherson, M. D. with the case as follows.*

"A Hindoo, aged between 60 and 70, was in June last brought in, a distance of six miles,to Howrah, with a spear wound in the abdomen, about 3 inches above the umbilicus, and 2 inches to its right, through which a triangular portion of liver protruded, of about the size and shape of the four fingers of the hand, lying side by side. The wound itself did not exceed an inch in length and was completely choked up by the liver. The man stated, that he had been stabbed in the dark about 12 hours previously, and that the liver came through the wound, as the spear was drawn out. It was added, that there had been very copious hæmorrhage, but the liver itself was not wounded, and though the patient was in considerable pain, the pulse was very little depressed.

"My friend, Dr. M. Henderson, who was present, agreeing that it would be impossible to return the protrusion without enlarging the wound to the extent of several inches, it was resolved, rather than wait for the tedious process of sloughing, to remove *it* by knife.

"To prevent hæmorrhage, a ligature was applied tightly round the base of the protrusion, which was then cut off. Nevertheless, two arterial twigs bled very freely, and it was found necessary to take them up, and a double ligature was also passed through the stump, and tied on either side, when all bleeding ceased. No attempt was made to return the portion of liver which still filled up the wound, as it was of course desirable to prevent all risk of blood or of bile being extravasated into the cavity of the abdomen. For a day or two the patient was rather low, and had slight irritative fever, and the bowels remained costive. These symptoms, however, yielded to a few doses of purgative medicine, and in nine days the ligatures came away along with a small slough of liver, the wound granulated and healed, and the man returned to his home in three weeks. No bilious discharge occurred from the granulating surface of liver. The portion of liver removed, after having lost its blood, and being in spirits for some weeks, weighed 1¼ oz. Its surface is uneven, though not torn, and it is probably a portion of the edge of the right lobe, from near the notch between it and the left."

"It is difficult to explain how so large a portion of liver could have protruded through so small a wound, even if allowance be made for the size of the wound being diminished by the contraction of the abdominal muscles, and for the protruded portion becoming congested."

"It is unnecessary here to allude to wounds of the abdomen generally, or of the liver in particular, (for in this case the liver does not seem to have been wounded) or to the extraordinary recoveries from almost every variety of them. Such cases are innumerable. It has long been known, from the experiments of one of the Munros, that rabbits have suffered very little from having portions of their livers cut off. It was also known, that patients live for years after the loss of very considerable portions of liver by hepatic ab-

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"The only notices that I have met with, on the subject of the excision of portions of liver, are the following."

In Blanchard's "Anatomia Practica Rationalis," Amsterdam. 1688, is to be found the case of a soldier who was wounded by a sword in the hepatic region; the wound was succeeded by a profuse hæmorrhage and deliquium: on the cessation of the hæmorrhage, a morsel of the substance of the liver was removed by the forceps, and patient recovered after many threatening symptoms. At the end of three years he died of fever. On dissection, a small portion of the lower part of the wounded lobe of the liver was observed to be wanting; the other viscera were sound.

Professor Dunglison quotes a case from Dieffenbach s Journal, in which a boy fell on a knife, and a portion of the liver protruded. Without being aware of its nature the surgeon in attendance cut it off with his scissors; no bad effects followed. American Medic. Intelligencer. vol. 1, p. 191. The history of the second of these cases are imperfect, and in both the portion, liver of removed seems to have been very small.

Note by Allan Webb.—Also one in Metzer's Princip. Med. Legal." Trans. Ballard. Paris, 1813. Notes p. 360.

scess, and may exist for months, with the whole liver converted into a mere cyst; but the actual removal of a considerable portion of the liver from the human subject, with so very little constitutional disturbance, even allowing for the patient being a Native, is a fact of considerable interest in medicine and in physiology.

"I may add, that the patient complained of a good deal of pain when the surface of the liver was touched, but that cutting through its substance hardly caused him any. The old man appeared two months after, as prosecutor in his own case: he was in perfect health; there was a little puckering in of the skin about the wound, and the liver was evidently adherent beneath."

759. *A section of what is called nutmeg liver.*

1648. *Another specimen from a Native woman of nutmeg liver, presented by Dr. Ross Jessore.* See case 1648.

189. *Complete atrophy of the gall-bladder,* owing to contractile tissue the result of inflammation, consequent upon the presence of calculi, which are seen to completely fill the remaining portion of the bladder. The liver around is softened, from having been implicated in the inflammatory action. It has undergone some degree of cellular degeneration. It had been ruptured. See Case 189.—*From a Native woman*

334. *Another fine specimen* of the effect of adhesive inflammation producing partial obliteration of the gall bladder.

357. *Gall bladder enlarged from obliteration of the ducts,* caused by tumours developed near the neck, between the mucous and muscular coats. The reticulated appearance of its mucous coat, is well shewn.

600. *Gall-bladder elongated like a fold of intestine,* distended to three times its usual size and length by calculi, with which it is filled.

982. *Specimen of atrophy of the liver, and of calculi in gall bladder from a Native.*

2 13. *Human gall-bladder with a portion of liver attached.* The ductus hepaticus, and common duct, are here of large size, much exceeding their natural dimensions.

807. *Obstruction of the gall ducts, from the pressure of scirrous tumours.* The ductus communis cholodochus is nearly obliterated from this cause. *Presented by Professor Webb.*

215. *Section of the human liver with the gall-bladder, biliary ducts and portion of the duodenum.* The gall-bladder is much enlarged in size, and contained a considerable quantity of limpid fluid. See case No. 215.

333. *A cyst in a liver,* size of a walnut, containing calcareous matter.

336. *Another cyst—calcareous matter within it.*

338. *Portion of human liver, with the sac of what has all the appearance of being a dead hydatid.*

769. *A fine specimen of hydatid of the human liver,* large as a closed fist, projecting beyond the free edge of the liver, parallel with the gall bladder, close to it, but on the right side.

185. *Liver of a Domestic Rat,* (mus decumanus,) with a cyst in its centre from whence was extracted a tenia tricocephalus dispar

and which is seen appended. There are also two other cysts containing remnants of similar dead worms.—*Presented by Mr. Evans.**

186. *Liver of a Domestic Rat* affected with strumous abscesses, a disease that this destructive race infesting Calcutta, where the observation is chiefly confined to, seem to be sorely afflicted with; as scarcely any are exempt from it, in a greater or less degree. Whether the disease be induced by the overfed state in which they live, or the effect of mephitic air generated in the town sewers and drains, or be simply an altered state of the natural parts arising from the irritation of the afore-mentioned worms, it is hard to say. It is a curious circumstance, and well worthy of further investigation. The bottle also contains a kidney from the same animal similarly affected.—*Presented by Mr. Evans.**

187. *Liver of another Domestic Rat*, with a large collection of the same kind of strumous matter contained in a cyst, appended to its concave surface. There is likewise a corresponding collection of a smaller size in the parenchymatous structure of the liver, and a similar one was also attached to the omentum. They were all taken from the same animal, and would appear to be of the like nature as the last described.—*Presented by Mr. Evans.**

188. *Liver of a Dog* (Canis familiaris) affected with tubercle of a pulpy or scrophulous character.—*Presented by Mr. Evans.**

1446 *Bony deposition in liver. presented by Dr. J. Mouat, Inspector General, Madras.* " Private Robert Whiskin, Ætat 39 years. In India 17 years, H. M. 15th Hussars. A servant stout and sanguine. Habits good, admitted on the 11th May 1846, at 3 P. M. with all the symptoms of spasmodic cholera in which state he continued, till he began to get worse, and expired the following day, at ½ past 2 P. M. or within 23½ hours.

Autopsy 4 hours after death. *Head:*—Vessels of pia-mater injected with blood, 1½ oz. of fluid in each ventricle. *Chest:*—Slight adhesions of both lungs to the parietes, vessels gorged. *Abdomen:*—Liver enlarged and a bony deposit about the size of an egg discovered in right lobe. Patches of inflammation of stomach, —other viscera healthy. *Preparation.*—The bony deposit."

This bony deposit, is as large as a walnut, embedded in the substance of the liver. The parenchymatous structure of the organ is puckered up all round it, giving the idea of an old cicatrix—the site of which it doubtless occupies. Such formations are not unfrequent in the cicatrices of lungs (see p. 187* and 173*.) They take place according to a law observed in all the organs and textures of the body; in parts and formations, *as well as in old inflammatory exudations when they lose their vital properties and living characters, calcarious matter is secreted from the blood in those textures, which, as it were, become calcarized or penetrated*

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* " In the substance of one liver " says MR. H. GUTHRIE speaking of Bareilly fever, " we found a large lumbricus alive which must have crawled through the gall-ducts " Appendix p. cxcix. vol. viii. Med. Phys. Trans. Cal. See also Med. Obs. vol. i. p. 68, a case in an Americanwoman is recorded.

with earthy matter"—(not however true bone see p. 74.) CASES of cicatrization of liver are recorded. *Nos*. 1538. 1539. also p. 37.

650. *A section of inflamed liver from the vicinity of an abscess*, to shew the softening which takes place. All the vessels greatly congested, the lobules look like dark spots with a white edging round them from Glisson's capsule. *Presented by Professor Webb.*

337. *An irregular superficial abscess of the liver*, with a border of adhesions, which probably fixed it to the neighbouring parts, in order to evacuate a deeper seated abscess, in the interior ; of which it formed the external opening. A canal is seen leading from these irregular ulcerations to the interior of the organ. *Presented by Professor Webb.*

1403. *Encysted clustering-fibrinous tumours in the liver, which is reduced to about half its natural size,—the left lobe having entirely disappeared*, and a large puckered surface and a little atrophied slip of the edge alone shows where it had been. The centre of the right lobe is occupied by a cluster of whitish, fibrous, elastic tumours, spread about like grapes, which they resemble in size, and enclosed in membrane, only protuding externally at the puckered surface; and there connected with the mesentery on one side, and disrupted tissues of the liver on the other. They are not tubercular. The gall-bladder nearly obliterated, the duct quite impervious, both reduced to cellular tissue. [The abdomen amazingly distended with dropsical effusion, of a yellow fluid; dropsy of the pericardium, œdema of legs, the pericardium very greatly distended. *Heart* atrophied, especially right side, left ventricle perhaps thicker than natural,—its serous coverings generally opake, and having false membranes produced in the cavities of both sides. *Spleen* large. *Kidneys* natural. *Lungs* inflamed, greatly congested, acute general bronchitis, and tracheitis. From a Hindoo Fukeer, had been a patient of the Chandney hospital.] *Presented by Professor Webb.*

552. *Tuberculosis of hepatic ducts.* This fine specimen was taken from the body of a native of Cananore, and illustrates, in a beautiful manner, the views of Dr. CARSWELL, in this department of pathology. The tubercular matter is seen as well injected into some of the ducts, as if it had been done for the purpose of demonstration. Those of the ducts which are cut obliquely, present an arborescent appearance; whilst many others cut across, still shew the cavity in the centre, which led to the notion of a central softening point, as particularly insisted upon by LAENNEC. Whereas it is abundantly evident that this is only the remains of the old canal, not as yet completely obliterated.

Examined by the microscope, matter taken from these canals has the distinctive characters of tubercle, (granular opake matter in a cell generally round with transparent walls,) compared with tubercular matter of the lungs taken from another subject and also examined under high power, the characters were similar. A large group of lobules injected with tubercular matter, like the head of a cauliflower has been sliced, and bears strong resemblance to tuberculosis of the lungs, this is more striking from their coalescence in one place and breaking up into a vomica. *Presented by Professor Webb.*

169. *Is a preparation of tuberculosis of the liver*, which forms a sequel to the last preparation. Here instead of the organ being twice, as small as in health, it is twice as large. The increase of size however is entirely owing to the enormous developement of the middle lobe—or lobulus quadratus.—This seems to have been the compensating effort of nature, for the loss of glandular structure of the right and left lobes, from tuberculosis. In the right and left lobes no lobules are seen, but only cells, of various sizes filled more or less with tubercular matter. But in this additional lobe one section shews very healthy granular structure. The front edge of the liver, has adhered to the gall-bladder, carrying it onward, until it looks like a double gall-bladder, and the more so, as it has taken a half turn downwards. The cystic, and hepatic ducts, and common duct; are all pervious, and prove that this is the true account of this singular deviation from the normal condition of the gall-bladder. The convex surface of the liver is distinctly embossed with tubercles like hob-nail-heads. Some of these have coalesced, forming a mass as large as a walnut, soft in the centre, projecting from the edge of the left lobe. Others, have broken up into a vomica of the middle lobe supplemental which is almost wholly disorganized by subsequent suppuration. The broken up tissues of the organ are seen projecting into an irregular vomica formed in this situation.

LIVER ABSCESSES AND THEIR CONSEQUENCES.

157. *A magnificent specimen of encysted abscess of the right lobe of the liver, forming a huge cavity which would contain a man's head.* The enormous distention of the structures, is strengthened by adhesions to the surrounding parts, as the diaphragm, &c. The left lobe appears to be sound. The interior of the cyst is lined by albuminous and fibrinous concretions.

809. *Three encysted abscesses in the same liver.* One in the left lobe size of a closed first, another in the right lobe, as large as a goose-egg, another in the middle lobe, close to the cava, the size of a walnut. The man had also abscess in the brain.—See Case 809.

895. *Sacculated or encysted abscess in right lobe of the liver. Presented by Dr. Mouat, Inspector General at Madras.*

Pt. S. J. Maisey H. M. 15th Hussars. Was admitted into Hospital on the 3rd September, ill 14 days previous to admission, with symptoms of acute dysentery; a fullness over hepatic region, without any pain, indicated suppuration. Died on the 29th September 1845.

Dissection Report, 12 *hours after death. External appearances* body thin. *Head*, cerebral structure firm and natural, the lateral ventricles containing the usual quantity of fluid. *Thorax* contents of thorax natural, excepting right lung, which is atrophied, and there are adhesions both to costal and diaphragmatical portion. *Abdomen. Liver* rather pale coloured externally and nearly the entire portion of right lobe forming a sacculated abscess containing about 3 lbs. of thick purulent matter, gall bladder distended with thick grumous bile. *Kidneys* natural. *Stomach* containing a large quantity of green bilious fluid, mucous coat rather vascular. *Spleen* natural, colon dark coloured, with spots of ulceration ; mucous coat vascular throughout its extent. *Bladder* collapsed. *Liver* preserved."

1444. *Abscess in the right lobe of the liver at its upper or most convex surface, opening into the chest through the diaphragm.* The abscess is not encysted, but the liver itself, especially the right lobe is surrounded by a thickened capsule about six lines in breadth, less distinctly seen in the left lobe. But the left lobe as well as the right, is softened from previous inflammation. *Presented by Dr. McPherson, of General Hospital.*

555. *Abscess in the liver opening into the lungs.* It seems to have commenced in the most convex and posterior part of the liver, not implicating much of the organ, but it has burst into the chest through the diaphragm, forming with the lungs one large cavity. The destructive ravages of the disease, are abundantly evident in this huge chasm ; great blood vessels, disorganized tissues, and the wreck of the air passages, and pulmonary structures, all confounded together in one gaping ruin. An opening is seen into the chest, and its effect on the pleura, by deposit of lymph, the ordinary product of inflammation.—*Presented by Professor Webb.*

1532. *Atrophy of liver, heart, and lungs—caused by abscess in the liver bursting into the cavity of chest*, from a Hindoo sent from Genl. Hospital. No case. An abscess had formed in the convex surface of the right lobe, ulcerating through the diaphragm, had emptied its contents into the right chest. Fibrinous dropsy ensued, coating with plastic layers the whole of the lung, which is reduced to a size not exceeding a closed hand, the heart small, its parietes very thin. The weight of the superincumbent fluid in the chest has pressed down *the liver, till it is flat throughout as a hand, and scarcely exceeding a hand in size.*—

859. *Abscess of the liver opening into the pericardium.* Received from the General Hospital. In this case there was an abscess in the Epigastrium of small size, which abscess being opened gave exit to 40 oz. of matter, and a catheter was introduced to ascertain its extent, and the side whence it had proceeded,—on which it was found that the abscess communicated with the cavity of the pericardium ; so that when a catheter was introduced the pulsation of the heart pushed the catheter aside. Post mortem examination showed (as seen in this preparation) that there was an abscess in the liver of small size, which communicated with the cavity of the pericardium, and this had formed an external tumor in the epigastrium. About a pint of matter in the left pleura.—*Presented by G. C. Rankin, Esq. General*

Hospital. A similar case is recorded by **Dr. Murray.***

805. *Abscesses in liver opening into the duodenum and stomach.* In this remarkable preparation we observe first, an old abscess, which has strong adhesions to the false ribs on the right side. These adhesions give it the appearance of an aneurismal cyst projecting on the right of the gall bladder. This old abscess was empty, containing only a little yellow fluid, mixed with flocculence. It is lined by a sort of mucous membrane. This abscess had been evacuated by puncture, as marked by the glass rod. Secondly, another of more recent date, and not larger than an orange, is seen to have opened into the duodenum, just below the pylorus, immediately to the left of the gall bladder, to which last the duodenum is seen to be intimately adherent. Thirdly, another abscess formed in the centre of the left lobe, and then extended upwards, causing absorption of all the structures till it reached the diaphragm. Here it adhered strongly, and seems to have directed its course, as if to open at one point into the pericardium, for it has perforated the diaphragm. The pericardium, however, and lungs, though both strongly matted to the diaphragm escaped. The abscess directed its course downwards, opening into the stomach about three inches below its cardiac orifice. The ulceration has proceeded through the mucous coat; and the outer cellular coat of the stomach is reduced to a sloughy state, and hangs about the opening like a valve. See Case 805.

1524. *Abscess of liver opening into the Stomach.*—Right lobe, studded with small abscesses, left lobe occupied by a large abscess, the lower part of which communicated with the stomach. Taken from an European, George Chumley, admitted with delirium tremens, 31st October, 1846, died of liver disease, 30th November, 1846. *Presented by Mr. E. Loftus, Ceylon Medical Student.*

1608. *Abscess in the left lobe of the liver, opened into the great omentum* and pointed in the umbilical region, burst into the abdominal cavity (See case No. 1608 from an European, Presented *by Mr. E. Loftus.*

1533. *Liver showing the presence of two abscesses, one encysted and the other diffused.* One abscess communicated with the duodenum, and *opened also into the vena cava ascendens.* (See also Encyclograph des Sciences Medical, Aug. 1842, p. 280,) as shewn by the rod Liver has undergone *cellular degeneration* around the abscesses. *Presented by Dr. W. H. Clark, of Dum-Dum.*

1535. *Abscess in the right lobe of the liver bursting into the transverse arch of the colon. Presented by Professor Webb.*

1437. *Numerous abscesses in the liver of small size, non encysted.*—A liver, with part of transverse colon, and right kidney attached, taken from a native woman about thirty years of age, brought into the dissecting room: showing the existence of many little abscesses in the right lobe; and one large one at its anterior extremity, which part has contracted adhesions with the transverse colon; and another abscess of smaller size situated in the middle of the left lobe, which part was found adhering to the right kidney. The other organs of the body seemed to be perfectly healthy. *Presented Mr. J. Pitt. Col. Student.*

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* Madras Medical Journal.

1046. *A large non-encysted abscess in the right lobe of the liver, a smaller encysted abscess in the left lobe. Presented by Dr. J. Mouat, Inspector General of Madras.*

1552. *Liver and spleen disorganized by cellular degeneration, covered with artificial capsules, from effusion of lymph, by which they adhere to neighbouring organs:* the result of inflammation generally throughout the abdominal viscera, and the thoracic also; occasioned by perforation of the intestines from worms. The parenchyma of the liver is converted into a mere network, resembling anasarcous cellular tissue, the cells are all empty, and not a vestige of glandular structure is left, *nothing but Glisson's capsule.* A Native woman. *Presented by Tameez Khan,* See Nos. 1551, 1553, and 1554.

936. *A liver with extensive diseased action in its concave surface*—and *impervious gall bladder with kidney adhering. By Dr. Clark, of Dum-Dum.*

This preparation shews a mixture of the states of fibrinous deposition, (as soft tubercles,) and of purulent deposition (as small abscesses,) and also cellular spongy degeneration; with large intermediate masses of healthy liver. In the largest spot of disorganization, the vessel leading to the abscess is seen to be closed by adhesion.

1607. *Liver adhering to the Stomach, from an European.* Presented *by Mr. Loftus see No.* 1607 (*intestines*)

1539. *A fine example of cicatrix in the liver, also atrophy of the left lobe, which is firmly adherent to the spleen by a prolongation of liver about five inches long,* as thin as the diaphragm. From an European who died at Aden. *Presented by Dr. J. Mouat, Inspector General of Hospitals, Madras.*

778. *The liver in this case, has scarcely gone beyond the stage of congestion and softening.* The great portal sinus is seen to traverse the organ from right to left. The coagulated blood in its interior forms an exact model of the canal, as thick as the finger. In one spot, a *foyer* of coagulated blood has begun to accumulate and the structure of the liver to lose its vital cohesion, preparatory to the formation of abscess. The organ has become atrophied. *Presented by Professor Webb.*

648. *This preparation illustrates exceedingly well congestion of the liver, followed by softening and suppuration.* The external part seems even more solid than usual; but the interior of the organ is one large diffused abscess, traversed by the great vessel, the vena portæ; whilst the proper tissue of the liver is hanging in ragged shreds from the interior. *Presented by Professor Webb.*

1583. *Gangrene of the liver consequent upon dysentery.* See No. 1584 from a Indo-British subject. Presented by *Mr. Roosmalecocq.*

753. *A fine specimen of central abscess of the liver encysted.* The cyst lined by mucous surface, is as thick as the diaphragm. There are adhesions of the lungs to the diaphragm, and of the latter to the liver

1540. *Diffused abscess in liver.* The organ completely disorganized in it interior, its vascular structures unravelled by asthenic inflammation; taken from a native of Bengal. *Presented by Professor Webb.*

779. *In this magnificent preparation of diffused abscess,* the liver has become entirely disorganized, having lost all its characteristic form and consistence; being in fact a mere bag, strengthened by an universal adhesion to the diaphragm; leaving the vessels all hanging naked and bare in the interior, like mosses, and stalactites in a cavern, and giving a vivid idea of the wonderful vascularity of the organ, since the vessels may be followed, from the large portal trunks, to the finest ramules that are vissible to the naked eye. *Presented by Professor Webb.*

1538. *Liver showing the destructive effects of abscesses, and the sanative appliances of nature.* The whole of the left lobe is atrophied it is perhaps double the size of the lobulus Spigelii; externally it is puckered up, and has adhered to the neighbouring parts, internally it consists of dense ligamentous cellular tissue, and is the mere cicatrix of an abscess. The right lobe is enlarged to the usual size of the liver, and constitutes therefore nearly the whole of the preparation. On its internal surface it presents two deep and puckered depressions, which have evidently been strongly adherent to the neighbouring parts, internally these correspond to condensed ligamentous looking cellular tissue, and are undoubtedly two separate cicatrices. The upper one has greatly contracted the passage of the ascending cava, the whole of this right lobe is much condensed on its superficies, the centre of the organ has undergone the *cellular degeneration,* and is very spongy. By far the greater portion of the liver, however consists of healthy granular structure. *Presented by Professor Webb.*

1538. *Small sections of these liver cicatrices.*

1379. *Suppuration has disorganized one of the many lobes of the liver of an Aurang-Outang, and implicated the right kidney in the same abscess.*—The vessels of these organs all unravelled the arteries partially injected. The heart inflamed and stuffed with fibrinous coagula. *Presented by Edward Blyth Esq. Asiatic Soc.*

1534. *Remarkable atrophy of the left lobe of the liver.*

214. *Mass of human liver, altered in texture,* appearing to be of a medullary character. The peritoneal coat is much denser than natural. It formed a part of Dr. Twining's collection, and is simply kept to shew diseased structure.

1536. *Cirrosis of liver. Presented by Professor Webb.*

1562. *Liver of a new born child greatly enlarged, and adherent to the colon and small intestines, whence the inflammation was propagated.* The child died of enteritis and peritonitis caused by the native practice of rubbing the umbilical cord with heated oil, which had excited general inflammation; the colon is not thicker than a round worm and is plugged up with lymph. *Presented by Professor Webb.*

1044. *Section of a liver to show the structure indurated and condensed with a large suppurating cyst in the right lobe. Presented by Dr. J. Mouat, Inspector General, Madras.*

PATHOLOGY OF THE LIVER.

OBSERVATIONS.

COMMENTS UPON PREPARATIONS OF THE LIVER.

It is a peculiar character of the liver to vary in developement at different seasons of life, and under different conditions of life, without becoming therefore diseased. It is difficult to pronounce in this respect what are the limits: whence disease commences. Its form, the relative size and even the number of its lobes varies almost whimsically, so that in INDIA I have often had three or four livers at lecture to illustrate the usual descriptive anatomy. In the fœtus No. 1640, we see its very great size, relatively to the whole body, and that the right and left lobes are of equal size; or No. 1562, in which they are nearly so. Enlarged livers are often met with in the Natives, brought into the dissecting rooms. Oddly shaped livers even more frequently. Again we find that when from disease one lobe is destroyed, the other is inordinately developed, even to the full size of the whole organ, as in No. 1538. Nor can I doubt but that when portions of liver are excised as in No. 899, there would be fresh developement of the real glandular structure; and I am quite disposed to agree with GALEN that this alone must be the essential organic structure. In this peculiar property of fresh and fresh developement, when destroyed or injured, the organism of the liver differs widely from that of the lungs, but in most other pathological relations, it has to the lungs a great resemblance.

We may observe it compressed as a whole, atrophied from the weight of oppressing fluids till it is no thicker than an open hand, (See No. 1532) as is seen of the lungs in empyema. Again it may be compressed and atrophied from contractile tissue as in cirrosis Nos. (340, 583, 1536, and 1593.) In these conditions the whole organ is compressed, analogous changes occur in the lung, and its lobules, they also become annihilated more or less completely both from exterior pressure and from internal retraction.

We have already alluded to congestion which pressing upon the capillaries in the lobules of the lungs would affect their function and cause disease; the same will occur with the hepatic capillary system, as in nutmeg liver, (1648) or in apoplexy of the liver No. 1024. Various deposits may occur in its structure, and become diffused through its lobules, and destroy them, such as pus in the different forms of abscess, or fat, No. 656, or cysts (we have of these great abundance, as 333, 336, 338, 769, 187, &c.) bony deposits 1446, and tumours, and lastly tuberculosis, as in No. 169 ; which may be confined to a single group of lobules, or be more diffused, or may form vomicæ as occurs to the lung.

I have never seen a single instance of cancerous deposition in the liver in this country ;—not even in cases where the disease has been well manifested in the uterus, stomach and intestines. But, in England if the disease be far advanced, the liver rarely escapes. Of melanosis I have not, here, seen a single example. The case attached to specimen No. 552 shews that any disease, like this form of tuberculosis, *affecting the whole organ*, and rendering it wholly incapable of its functions, is followed by symptoms of the universal presence of bile in the system, as shewn here by the jaundice and high colored urine, whilst the stools are clay colored. This therefore, contrasts well with the preparation 157 ; where although half the organ was entirely destroyed, yet the other half is nearly wholly sound, and carries on the function: as we see occurs when the lung is similarly affected. No. 552 is the only specimen we have of tubercular matter deposited *in the ducts*. And shews as does also No. 169 the formation of vomicæ in the liver from tuberculosis exactly as occurs in the lungs. Adhesions and other affections of the peritoneal envelope are so obviously analogous with the same affections of the lungs as to require no comment.*

CELLULAR DEGENERATION OF LIVER.

Cellular degeneration in which the liver is converted into a mere sponge-like mass consisting chiefly of Glissons capsule without a trace of granular structure, is a common form of hepatic structural disease among the Natives of India, brought to the dissection room. Few livers indeed are entirely free from it, and it seems always to be accompanied with indications of inflammatory action. No. 936 shews this degeneration beginning in spots, No. 1529 is a more advanced condition, and being still quite green after six months maceration, leads me to suppose, as particularly explained in the minute description of this morbid change attached to Nos. 1528, 1529, 1530 p. 254*, that this condition may originate in obliteration of the biliary tubes, by which their secretion is confined, and by pressure destroys the lobules. No. 1552 shews the lobules entirely obliterated, and the liver converted to a mere cellular bag consisting of Glisson's capsule only.

HEPATIC ENLARGEMENT.

I have often found this capsule of Glisson so softened that the lobules could be separated by a stream of water, so that upon placing the liver under, the powerful *cataract* from a Bhishtie's bag, the lobules have appeared all isolated, hanging like young currants to a stalk, they are generally enlarged in such cases, and the liver as a whole twice or thrice the usual size, in consequence. Such an example of excessive enlargement of the individual lobules with corresponding increase of their cellular capsule is seen No. 1537 (described p. 254*) Sometimes the capsule of Glisson appears to be almost *dissolved.* The lobules glide or slide about in the transparent *peritoneal capsule* having lost that support which they derive from the capsule of Glisson; in other cases it is loose and *woolly* or visibly cellular. These conditions of the liver are the consequences of low typhoid fever, but I believe not of inflammation, at least in the way such a state is commonly *understood as summed up in pain, redness, heat* swelling and *increased capilliry* vascular *action* ; for assuredly this is not necessary to this form of disease: but if by inflammation we may understand congestion and effusion of serum (*stagnation* not increased action) then these are effects of inflammation ; they are commonly associated with enlarged spleen. In one case of an European child not two years old who died lately, the liver extended into the right iliac region resting upon the bone.

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* Sometimes hepatic abscess when opening into the lungs, can not be distinguished from Phthisis. A most interesting case, and rare complication, is related "*India Journal*; *Medical and Physical Science*," July, 1843, p. 297. See also Morgagni vol. ii. p. 184, and *Madras Journal*, vol. i. p. 478, for an excellent and minutely accurate observation by Assistant Surgeon MacGregor.

Mercury is most mischievous in this form of hepatic enlargement.

Dr. Kinloch Kirk, gives the following account of this disease.

" When in the course of low ill-marked fever of long standing, the spleen becomes very large, the liver also increases in volume, and this change in the latter organ is far more common than is supposed. Indeed I have known enlargement of the left lobe of the liver on several occasions mistaken for enlargement of the spleen. This lobe, even in health, often reaches as far as the spleen, and when fever of a kind I mention is long present, it becomes sometimes altered in the contour of its free margin, and descends considerably below the left hypochondre. On one occasion when the body of a man who had been killed by a blow on the head, was sent to me by the Magistrate of Shikarpore for examination, I asked four Native Doctors who were particularly well acquainted with spleen disease, whether they considered this man had laboured under any disease before his death, and they all agreed with me in thinking that the spleen was much enlarged. There was besides a yellowness of the conjunctiva, and of the skin generally, which is very common in this complaint. The body was then opened, and we found the anterior margin of the left lobe of the liver descending like a large tongue, to below the navel, from the left hypochondre.

The spleen being only about the size of an orange, the brain was paler in colour than natural, and dark blood flowed freely from the open veins of a cut surface as well as from the large sinuses. Indeed when the head was lowered, it poured freely from it, as if it had lost its natural adhesiveness, and its colour was very dark. The liver was considerably enlarged, but especially the left lobe, pale in colour both internally and on the surface, and when cut into, a thin serum oozed out from the surface of the cut.

The liver was flabby, and slack in its texture, and when a square portion was removed, it became flattened out to a small extent from its own weight. The granules or lobules, of which the liver was composed were much larger than natural, and there were numerous small yellowish points interspersed throughout the whole texture, the largest being of the size of a pin's head, and could be moved about with a needle. In the substance of the spleen these small yellowish points were also abundantly apparent. On cutting into the cellular texture of the surface of the limbs, a watery fluid slowly oozed, away. The body generally was not much wasted, showing that the fever had not lasted long, and the friends of the man assured me that up to the time when he received the injury of which he died, he was going about, and though weakly, was by no means laid up.

I have detailed this post mortem examination because it is particularly characteristic of a condition of body, under which a great number of congestive diseases arise, and which may be represented under the term cachexia; the dissolved and watery condition of the blood here spoken of, and the presence of low, slight and obstinate fever being its essential symptoms, and it is while they are present that serious and extensive injury is done to the cells, which form the minute elements of organized structure, changing thereby the anatomical features of these structures and causing a host of local diseases. When however the offending matter (purulent) finds an entrance into the current of circulation, we find arrangements made for its separation in the enlarged liver and spleen, where it seems to be caught up, and retained, till exposed to the chemical influence of the oxygen brought in the arterial current, it loses its deleterious properties, and becomes fit to be returned to the veins, to exercise a friendly, instead of a baneful effect on the constitution.

The application of ammonia to the albuminous principle of the blood leads to a change in the latter, whereby it puts on every character of mucus, and when this has taken place, a restoration may partially or wholly be effected by the admixture of arterial blood; and supposing this benign influence to be only partial, nature separates the remainder in the shape of colliquative discharges from the skin, intestinal canal, and bronchi, when the force and character of whatever fever may have been present, becomes much obscured.

We find then two most important accessary means, by which nature relieves the system from the deleterious effects of the presence of ammoniacal compounds retained within it. One is the combustion as it were, by the respiratory process described, of the ammonia by the chemical union of oxygen with it, in organs specially appointed, which assume this new function, whenever circumstances render it necessary that they should do so, and the other means, is their removal by colliquative discharge from the surface of the skin and mucous membranes.

We now then see why it is that the liver and spleen, and other organs in typhoid or cachectic disease, increase in volume, we see the circumstances under which the enlargement takes place, and it remains now to notice the steps by which we can aid the kindly efforts of nature in the restoration of health.

I have already mentioned the condition of the blood when exposed to the influence of typhoid disease. In scurvy, the same condition in every respect manifests itself, and no one will call in question, the beneficial effects of lime juice, both in its prevention and cure. The general similarity of those diseases, (if I may use the plural number for I believe them to be *one* and the same,) led me some years back at Jansee to give him lime juice in spleen disease, and with the most beneficial effect, and I have ever since continued its use. It was therefore with some pleasure I heard, on reaching Sukkur, that when the men of the 78th Highlanders were suffering from protracted sickness on the Sukkur Hills in 1843-44, that they found from their own experience more comfort and more advantage from the use of limes than from any other substance, and many gave back a portion of their rations, which in their weakly condition without appetite they could not use, to receive in lieu its value in limes, which were in great abundance there. These men were wasted in flesh, possessed of large livers and spleens, and weakened by continued colliquative purging. At Hyderabad to which they were afterwards sent, the limes were scarce and expensive, and hardly within the reach of poor men's means, and they were then supplied by the Commissariat on indent, but the authorities soon complained of the expense, and for a time the sick were without the benefit of them, when their symptoms became much worse, and they urgently complained of the want of them, and their wishes were ultimately complied with, when a due representation was made to the authorities of the necessity of doing so.

In the Infantry of the Bundelkund Legion at Shikarpore in 1845, during the months of September and October, the amount of sickness became great, and I had upwards of two hundred men in hospital, 80 having open sores, and the remainder suffering from the consequences of fever, of a low and obstinate kind, marked by enlargements of the spleen, liver and dropsy, with great muscular weakness and emaciation. To many whose symptoms were particularly urgent, I recommended the use of limes. I could have got them from the Commissariat on indent, to the amount of one pound of lime juice in a month, for the whole hospital, but I preferred making the Sepoys procure them for themselves, and got the bazar people to bring the limes daily to the hospital for sale, where several hundreds were purchased by the patients. Two or three limes used in a day, did not seem to do much good, but when the patient used ten or twelve they produced in the course of a week or ten days, an astonishing effect in the volume of the enlarged organs. Most of the natives peeled the lime and ate it with pepper and salt. I found it difficult to get many of the patients to eat a sufficient number, and they often said they ate a dozen, when they had not eaten one half, until I warned them that if they wished to see the banks of the Ganges again, they had better do what I told them, and I may mention that I did not lose a single man directly from the disease I speak of, though several died while so afflicted. One man, for instance, after long exposure to the force of the sun died of apoplexy, another ruptured his spleen by a fall from his bed, but no one was carried off by the force of the complaint.

About the end of November, the limes became scarce, and soon after went out of season, when I resolved to try another remedy for scurvy which is in high repute with the natives of India, and was brought prominently to notice by Doctor McNab, in Vol. VIII. of the Transactions of the Medical and Physical Society of Calcutta. This is the fruit of the *Phyllanthus emblica,* called by the natives " aoûla," the fruit of which is used in various ways. It is sometimes pickled in vinegar. Or preserved in syrups, and may be had in any quantity in towns of any consideration, in a dried state, at the rate of a seer for two or three annas. An infusion of two ounces of the aoûla in twenty ounces of water was given to ten men three times a day in conjunction with whatever else was necessary, as bark, quinine, opium, &c. and I found this remedy certainly as useful as lime juice in cases where the spleen and liver were enlarged, which is easily accounted for when its principles are known; these I found on examination to consist of citric acid, tannic acid, and pectin or vegetable jelly."

See also, " my own Case" p. 114. *Medical Topography of Upper Sindh by* KINLOCH W. KIRK, M. D. published by order of Government, Calcutta, 1847 p. 110 to 113.

CASES.

NUTMEG LIVER FROM A NATIVE WOMAN, No. 1648.

By Dr. W. H. B. Ross, Civil Surgeon, Jessore.

I have the honor to send you a very fine specimen of that form of morbid degeneration of the liver, which has been denominated nutmeg liver, it was taken from the body of a female who died in the Charity Hospital from a combination of general dropsy and colliquative diarrhœa. The liver was considerably enlarged, and the investing capsule of the organ was of a violet tint when the body was first opened. The anasarca, which was very extensive in the lower extremities, when the woman (Prosuno Mahi) was admitted on the 16th October 1847, was in a great measure overcome by a combination of Mercury, Ipecacuanha, Pulv. Scill and Pulv. Digitalis, the collection of water in the abdominal cavity had nearly disappeared ; but diarrhœa continued to exist notwithstanding the long continued exhibition of compound Ipecacuanha pills, combined with opiates, mineral astringents in combination with opium, injections of tincture of opium, &c. The large intestines were much ulcerated and the kidneys were mottled small and flabby. The woman had suffered much in former years from venereal disease, as was apparent from the remains of enormous nodes and ulcerations on the tibia on both lower extremities,

HÆMATEMESIS FATAL, CAUSED BY ENLARGED, HARDENED LIVER. No. 169.

By W. Raleigh, Esq.

9th March.
V. S. to approaching syncope.
Repeat Acid Sulph Dilut.
Enema Purgans.

Mr. Guyer, æt 45, pauper, admitted 8th March, 1833. Yesterday 9 P. M. he was suddenly seized with vomiting of dark grumous blood partially coagulated and in quantity about 4 quarts, soon after considerable weakness at stomach, he had prescribed for him acid sulphuric dilut ʒss. water ℥iss. every hour and a purging enema during the early part of the morning. The stomach again ejected about 2 quarts of coagulated blood, he is now hot and dry in his skin, his respiration is difficult, and pulse frequent, and bowels hard, 2 copious motions from the injection.

Vesp. Stood the bleeding well, and lost 12 oz, his pulse continued firm, and his symptoms relieved until 3 P. M., when he discharged about 8 oz. more of coagulated blood, and was immediately affected with difficult, and laborious respiration. He continued to grow feeble under this—and gradually sunk, and expired at 4 P. M.

Autopsy.—Stomach distended, and containing two pints of blood which had been effused from the surface generally of the mucous coat which was in a state of extreme vascularity. Liver large tuberculated, very hard, and of a pale yellow or drab color, which cut into was almost devoid of blood. Gall bladder very large, containing at least ℥4 of pale watery fluid.

PNEUMATOSIS OF THE LIVER—DYSENTERY, PERFORATION OF THE CŒCUM &C.

By Dr. Oxley (Singapore.)

Feb. 6th.
℞ Hyd. Chlorid gr. iij.
Pulv. Opii. gr. iss.
„ Ipecac gr. iij.
M. ft. pil. ij. ter die s.
Milk diet.

Peter Howard, æt 26, complains of griping and pains across the abdomen, when at stool with a pain in the arms, at times, when he coughs, bowels have been freely opened since last evening from the medicine stools being of a green colour not passing any blood, rather slimy, much purged the two previous days, this has been living freely. Tongue slightly coated, dry, pulse 140, small and weak.

7th March.
Spt. Ammon Co. ʒss.
Port Wine ʒ ij.
Tinct. Opii.
Tinct. Card Co. ʒss.

Purged yesterday—pain and griping at stool tenemus, pulse 100, small and quick, tongue rather coated, stools bilious and feculent.

8th
Pt. c Haust. et pil. ter die
Pulv. Dover gr. xx.
Emp. Lyt

Is feeling rather better, bowels not so much purged, only 8 times yesterday, stools not so much blood, bilious, tongue cleaner pulse 132, small and feeble, regular, slept better.

9th
8th. Enema. Ipecac c. Opio h. s.
Brandy ℥ iij. at two occasions with water sufficient.

Says feels better, no pain whatever any where, bowels opened 5 times, stools bilious, tongue rather coated—pulse 140, small and weak, not slept well.

9 P. M. died, was moving about in his bed but few minutes before—seemed to be pretty well, about 5 P. M. talking to some of his friends who had come in.

Autopsy, 11 *hours after death.*

Head—Vessels of the pia mater injected, especially the veins which were unusually filled with bubbles of air, strong cellulo-fibrous adhesions existing between the inner surface of the dura mater and upper surface of the tunica arachnoides; supr. longitudinal sinus filled with a white fibrinous clot, looking exceedingly like a flattened lumbricus teres. Lateral ventricles containing ℥ss. of limpid fluid—but the vessels of the pia mater lining its cavity loaded with, and agglutinated together by medullary looking granules, rather unusual, the other parts were healthy as also the cerebellum.

Lungs pretty healthy, though there were some strong adhesions of the right side. *Heart.*—Natural.

Liver.—Enormously enlarged, of a fawn color externally, with lighter colored patches here and there. Internally of a fawn colar, not the nutmeg appearance, but one analogous to it, yet more unusually seen, the parenchyma, or interstitial substance being filled with air, which oosed out with a hissing effervescing sound upon being squeezed, and gave the impression to the touch of a doughy or lung-like feel.

Stomach.—Very vascular, inflamed, but no ulceration. *Peritoneum*—Healthy but much thickened. *Mesenetry*—Unhealthy, dirty looking, upon being raised found to be attached to and over the cœum, forming a sack double the size of a crown piece, this was filled with fœcal matter, and the gut was found perforated by ulceration of the Caput Cœcum Coli internally, the whole tissue of this gut was found more or less ulcerated (a preparation of it accompanies the case) the colon was pretty healthy, and so were the small intestines excepting the duodenum which was highly inflamed.

The Rectum extending as high up as the Sigmoid flexure presented a mass of ulceration, surrounded externally by enormously thickened tissue, the whole of which divided into two preparations likewise accompany the case. The one including the verge of the anus viz. sphincter and part of the levator ani, externally, as well as the bladder, which is opened, and left in situ. The other, the continuation of the gut, till reaching the sigmoid flexure, such masses of ulceration being rarely met with, accompanied by such ordinary symptoms as presented themselves from the time of his admission.

It seems from particulars subsequently learnt that the poor man was respectably connected at home, but having become infatuated to the habit of drinking, thus as it were threw away his life. I inferred he drank from the symptom of his case and some slight nervousness of manner, but was not decidedly made aware of his intemperate habits, previously to death

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BRUISED LIVER, ABSCESSES, GANGRENE, DYSENTERY AFTER RAINS.

By Mr. J. J. Roosmaleecoq. Studnet.

℞ Olei. Ricini ℥j.
Tinct. Opii. gtt. x.
M. ft. Haustus Stat. Sumend.
Bleed to syncope.

William T—, ætatis 30, Cook on board the "Mirzapore," admitted 10th August, 11 A. M. suffering from an attack of acute dysentery, of which the following are the symptoms on admittance. Frequent stools of a bilious nature, mixed with slime and fœcal matter accompanied with much straining, tenderness on pressure about the hypogastric region, skin hot, and feverish, pulse full and rapid, headache, tongue furred and dry, appetite lost, thirst intense, passes restless nights. States that these symptoms are of seven days standing, and assigns no other cause but the following, that two days prior to the present disorder he had received a severe fall, which, occasioned intense pain on the right side of the abdomen, which is still present. The patient seems to be of intemperate habits, and one who (as stated by himself) very seldom had to complain of any disorder in his system.

6 P. M.

Had five stools since admittance of the same nature as before described, skin covered with perspiration, pulse soft and steady, headache and pain about the hypogastrium much diminished, blood drawn from the arm buffed and cupped.

Aug. 11th 6 A. M.

℞ Hyd. Chlo. gr. iij.
Pulv. Ant. Tart. gr. ¼
Ext. Opii. gr. j. ter die.
Anodyne Enema. Hirud xij. to anus.

The patient is feverish, had several stools with much straining since last report, consisting of fœcal matter mixed with slime.

8 P. M.

Hirudines vj. to the temple.

Complains of severe headache, has no pain about the hypogastric region, feels now and then a griping, is still feverish, seven stools since morning.

12th 6 A. M.

℞ Hyd. Chlo. gr. iv.
Pulv. Ipecac. gr. ij.
Ext. Opii. gr. ss. M, every 4th hour.
Hirudines xvj.

Slightly feverish, complains of very little headache and great pain about the hypogastric region, the pain on his right side occasioned by the fall is still prevalent, had several stools with much straining consisting of fœcal matter mixed with slime.

1 P. M. Anodyne Enema every 4th hour.	Skin relaxed, pulse soft, has very slight headache, had about 20 stools with much straining since morning.
13th 6 A. M.	Had about five stools consisting of fœcal matter with little slime since last report, has no fever nor headache, pain about the hypogastric region much diminished.
8 P. M. Tinct. Opii. ʒj. Stat.	The patient became very delirious, has no headache,—nor warmth of skin, pulse small and feeble.
14th. ℞ Ext. Opii. gr. ij. Pulv. Ant. Tart. gr.ss. M. ft. Pil ter in die.	Yet rather delirious, pulse small and irregular, skin relaxed.
1 P. M.	The patient lying as it were in a trance, pulse steady, skin warm and bedewed with perspiration.
15th. ℞ Olei Ricini ℥j. Blister to the abdomen	Had frequent stools, pulse small and feeble abdomen tense and rather tender.
16th 6. A. M. ℞ Cupri. Sulph. gr. ss. Ext. Opii. gr. ij. M. ft. Pil ter in die.	The patient is very low, pulse small and feeble, voids stools involuntarily consisting of blood and shreads of mucous membrane.
4 P. M.	Hiccoughs, pulse sinking, vomited bilious matter.
17th 3 A. M.	Died.

Post Mortem Examination.

Upon opening the abdomen the greater omentum was found thickened in the neighbourhood of the intestines that were ulcerated. The cœcum and the whole of the colon with the flexure, which were adhering to the lateral parietes of the abdomen, were covered with sloughing ulcers, the parts congested and thickened. The surface of the ulcers presented a peculiar appearance as if charred with sulphuric acid and their edges elevated. The iliocœcal valve was only congested and its coats thickened. The coats of the descending portion of the colon were more thickened than any other part. There were several clots of coagulated blood observable in the whole course of the ulcerations. The remaining portion of the intestines, mesenteric glands and the stomach were only congested. The liver was much beyond the ordinary size, and of a granular structure, two large abscesses were found in the right lobe, one of which had been burst previous to the opening of the abdomen, and the discharge pure pus, the cavity of the abscess had a ragged appearance. The spleen, kidneys and the bladder presented no abnormal deviation, except that the latter (the bladder) was small and distended. The contents of the Gall-bladder which was greatly distended were black and thick resembling tar. The lungs were engorged with, blood, and there was hypertrophy in the right ventricle of the heart. The brain likewise was congested and indurated, and there were specks of blood distributed throughout its substance, the lateral ventricles were distended with about three drachms of serum.

CIRRHOSIS OF LIVER—SEE NO. 340.

by Dr. McPherson, General Hospital.

12th.
℞ Morph. acet. gr. ss.
Enema Opiat. H. S.
℞ Pil. Plumbi c opii.

Mr. J. M. D— aged 44—Pauper of dissipated habits for many years. Has had dysentery for about six weeks, he formerly had many severe attacks—is now in the last stage and is very low, motions dark, offensive and frequent, passed almost without straining.

14th. Motions healthier but frequent—weak and low.
Mist. Cretæ. Much the same—motions bilious with a little blood.
Rept. Pil. et Enema Feels better, motions less frequent.
18th.
Pergat. Died at midnight on the night stool.

Sectio Cadaveris.

On opening the abdomen a large quantity of serum and coagula escaped—on further examination the whole mesentery, mesocolon and mediastinum were found to be full of coagulated blood (which appears originally to have escaped from the splenic vein;)—aortic vessels quite healthy. The hemorrhage was entirely external to the bowels. The left kidney alone could be discovered, structure pretty healthy, no trace could be discovered of the right kidney or ureter; but a quantity of grumous blood was found in its place. Spleen enlarged to about 4 times its natural size, not soft. The liver extremely small, drawn together and contracted, so that it was hardly recognizable at first sight, having undergone the change of cirrhosis, adherent throughout to the diaphragm and intestines. Heart small, and fatty, lungs partially hepatized, colon studded with ulcers. It was not determined at all satisfactorily whence the hœmorrhage had proceeded, there was no trace even of a capsule of the right kidney, several osseous concretions were met with in the splenic vessels.

LIVER ABSCESS FOLLOWING ULCER ON THE LEG, IT BURST INTO THE ABDOMEN AFTER FILLING OMENTUM, SIMULATED ANEURISM.

NO. 1607.

Case by Mr. Loftus Student.

℞ Pilul Hyd. gr. iij.
Pulveris Ipecacuanhæ gr. ij. Extracti Hyoscyami gr. iv. m.
Fiat Pilula ter in die sumenda.
Diet low and farinacious.

James —— aged 30, was admitted on the 9th of August 1847, with *an indolent ulcer situated on the left leg*, a little above the external malleolus, whilst this was being healed he was attacked with dysenteric symptoms for which he was treated by Professor O'Shaughnessy and subsequently, since the 3rd of September, by Professor Jackson. States that he has had frequent calls to stools which are voided with much straining, and mingled with blood and mucus, has no pain about the abdominal region. Skin hot and dry, pulse small and rapid, tongue clean and moist, thirst excessive, appetite deranged, sleep disturbed by constant calls to stool. Countenance pale and dejected, eyes sunken, complains of much weakness. He had been in the surgical ward of the Hospital a year ago suffering from an attack of Syphilis, and after he was discharged from Hospital he suffered from an attack similar to the present, viz. dysentery, and at no other period of his life was he subject to this comlaint or to any other affection. He is a shoe-maker by occupation, born in England, of a low cachectic constitution, and of intemperate habits.

Sept. 4th 6 A. M. ℞ Sulph. Cupri gr. ss. Extracti Opii. gr. ij. M. ter in die sumenda. Diet low.	States that he has not been to stool so often, but strains a good deal, skin relaxed, pulse small and rapid, tongue clean, thirst yet excessive.
7th 6 A. M. Idem heri.	Stools yet slimy, has no straining, thirst not so great, appetite improved, pulse small and feeble.
16th. Sumat Haustus efferv.	Complains of hiccup and excessive thirst, stools solid, pulse small and feeble, appetite good.
18th. 6 A. M. Hirudines xiv. postea fomentum. R Ext. Opii. gr. ij. Pulv. Ipecac. gr. iij. M. ter in die. s.	Complains of pain on pressure about the umbilicus, skin hot and dry, pulse small and rapid.
19th 6 A. M. ℞ Cal. gr. x. Ext. Opii. gr. ij statim ℞ Olei Ricini ℥j.	The pain about the umbilicus is much decreased feels pretty comfortable, bowels regular, pulse small and rapid, skin relaxed.
20th 6 A. M. Repet. Hirudines xiv. Repet. fomentum. ℞ Opii. gr. ij. Ant. Tart. gr. ¼ ter in die.	There is redness and swelling observable about the umbilicus, on pressure the part is painful and rather hard, pulse small and rapid, skin relaxed.
23d. Sumat Haustus effervescens pro re nata.	The same as yesterday, troubled with hiccup day and night, no pain about the shoulder on strict enquiry : and never complained of any pain about that region.
24th. Cataplasma Lini Seminum ad partem dol.	The swelling tenderness and hardness are much increased, bowels regular, pulse small and rapid, skin relaxed.
25th. Cataplasma repetatur et Haustus effervescens pro re nata.	There is distinct pulsation to be felt about the umbilicus as it were proceeding from an aneurism, this pulsation is absent when the patient bends forwards, complains of hiccup.
27th.	The umbilicus with the neighbouring parts have assumed a conical appearance and tender to the touch.
October 1st.	The parts are subsiding, there is neither so much heat nor redness, but distinct fluctuation may be felt.
2d. 3d. ℞ Œtheris Sulphurici Liq. Ammoniæ a a ʒj. Mist. Camphoræ ℥vijj. Tinct. Lavandulæ ʒi. M. fiat Mistura.	The abdomen is quite even and soft, feels no pain, apparently the abscess has opened into the abdomen. The patient is extremely weak, pulse small and feeble, skin cold and covered with clammy perspiration. Is very restless, tosses his limbs from side to side, pulse fluttering.

Post Mortem Examination at 2 P. M.

Autopsy.—Upon opening the abdomen, the whole of that cavity was full of pus which proceeded from a large abscess on the lower part, and in the posterior surface of the left lobe of the liver, which gave way between the abdominal parietes and the greater omentum by a small opening : there was close adhesion of the muscles of the abdomen with the peritoneum (greater omentum) with the pancreas, the transverse colon, and that part of the liver in which the abscess was formed : the coats of the transverse colon were much thickened, and on opening the bowel, there was only a little fœcal matter to be observed.

The liver was enlarged and congested, the surface of the abscess had a ragged feel, the quantity of pus discharged from it may be estimated to be about two pints, there was no other organic lesion observable.

CHRONIC HEPATITIS TWO ABSCESSES, ONE HAD A COMMUNICATION WITH THE VENA CAVA. No. 1533.

By Dr. Clark Dum-Dum.

August 26th 1845.
℞ Hydr. Subm. gr. v.
Ext. Coloc. C.'gr. x.
m stat. s. Cras mane
Haust. Purg. ℥iv.

Gunner aged 25 years, 1st Company 3d Batt. Artillery, admitted 26th August, 1845. Complains of being constipated in bowels, and has slight febrile heat.

Vesp.
℞ Hyd. Sub. gr. v.
P. Ant. gr. iv. h. s. s.

Bowels freely moved by the medicine.

28th.
℞ Pulv. Rhœi. ʒj. s. s.

Some debility with general uneasiness and foul tongue ; bowels have been confined for some days previous to admission, no febrile symptoms.

Vesp.
℞ Calomel gr. x. Opii. gr. iss. m. h. s. s.
Appr. Hirudines xx.

A feculent stool followed by fluid blood, has pain in abdomen ; pulse soft and good.

29th.
℞ P. Doveri gr. vj. ter. hor.

A good night and is much better, no motion, all uneasiness of abdomen gone.

September 10th.
℞ Gamboj. gr. ss.
Calom. gr. iij.
Colocynth gr.iij. ft. Pil. ter. hor. s.
℞ Calomel gr. v. Opii. g.ii. h. s. s.

Feels better, bowels moved yesterday, motions dark green and feculent, yellow suffusion of skin a little less ; pulse slow with some irregularity. But no intermission, secretions in liver not satisfactory.

To use mercurial frictions (Ung. Hyd. Fort.)

11th.
℞ Ol. Ricini ℥i s. s.
Rep. Pil. h. s. s.
Rep. Pil Purgan. et Inf. Quassiæ ℥i c sing. dos.

Is something better, skin still suffused and perspires freely, slept well ; bowels moved, motions thin and like pea-soup ; bowels have been in a disordered state for many months, during which time appetite was impaired.

12th
Continue Medicine

Continues very languid, and skin yellow, moist, perspires freely ; bowels open ; stools containing healthy bile, but thin and not well assimilated ; pulse soft, moderate and good, no pain, tenderness, or uneasiness about abdomen, blister not yet healed.

13th Vesp.
Rep. Pil. Cal. et opii. h. s. s.

A copious dark green feculent stool ; pulse is soft and full. But with a peculiar and striking irregularity, not much accelerated. Has had starting in his sleep lately, complains of no pain or tenderness, but feels very weak, complexion less suffused, and appears to be doing well. The irregularity in pulsation probably from functional derangement.

14th ℞. Haust. Efferves. p. r. n. Fomentations.	Skin more suffused and quite moist with perspiration, complains for the first time of a pain in right iliac region.
15th Cont Pil. cal. et. opii. Haust. Efferves. s. o. f.	Better, a good night, pulse soft and nearly regular, has passed a bilious motion, yellowish green, and has less sense of oppression at præcordia, feels better.
16th. Rep. Med. Cont. Pil. ut. heri. Vesp. Hydr. Sub. gr. v. Opii. gr. i. h. s. s. ℞j. Ol. Ricini. ℥j. c. m. s. Mist: Camph. ℥j. p. r. n.	Passed a comfortable night, and feels refreshed, is however very languid, and pulse which is soft and slightly irregular; exhibits less power—skin still extremely suffused, motions this morning contained healthy, yellow bile, *some tension of head of right rectus muscle, and liver projects an inch or more below the margins of ribs. This is more obvious than at any former period.*
17th. ℞. Spt. Œther. Sulph. Tinct. Lavand. c. aq. menth. ppt. ter in die.	A rigor in the night succeeded by increased weakness—pulse soft and intermittent as usual—motions feculent dark green, consisting of depraved secretions of bile; margin of liver more distinct below right ribs without tenderness, disease to a considerable extent must exist in this organ.
20th. Cont. Medicament.	But little sleep, and pulse not so good; bowels not moved, but urine surcharged with bile, and copious in quantity.
Vesp. Rep. Tinct. Hyosciam h. s. s.	Pulse soft and quiet, bowels have been opened freely six times since morning, somewhat feculent in character, and deeply tinged with dark brown bile, urine passed in full quantity, also containing much bile, skin cool, and feels altogether easier than he was yesterday.
21st. ℞ Ol. Ricini. ʒiij. ex aq. Cassiæ quant. suf.	Feels considerably better than yesterday, looks livelier, slept soundly for four or five hours during the night, bowels opened once since visit last evening passes plenty of urine, still highly coloured with bile, pulse soft and natural, skin cool and moist.
30th Cont. Omnia.	A slight improvement. Takes nourishment freely —motions feculent.
1st October ℞. Ol. Ricini ℥j. s. s.	A disturbed night, from which he feels much exhausted, no motion, pulse soft, and equable, but accelerated. Tongue brown and dry. Is extremely weak, abdomen less tense and pain nearly gone, but is evidently declining.
Vesp. App. Sinapism Abdom Habt Enema Purg. h.s.	No stool to-day, much flatulence, complains of the tension of his abdominal parietes with irritability.
4th ℞. Pulv. Rhei ʒj.	Passed a tolerably quiet night and pulse soft, but is getting gradually weaker. Morbid action to some extent appears to exist in right lobe and adjacent tissues, hiccough gone.
5th	Slightly delirious in night and is now fast declining. Epigastrium distended and abdomen tense. Expired between the hours of one and two a. m.

Autopsy.—Body presented a very emaciated appearance, and skin was deeply tinged with yellow.

Liver.—Rather larger than usual, but of abnormal shape—of a compressed and rounded form, substance very firm, and posteriorly adhesion existed with the diaphragm. Two abscesses were found, one near the anterior edge and superior surface of right lobe, of small size, containing purulent matter of thick consistence deeply tinged with bile, its smooth lining membrane indicating morbid action of long standing. The second, contained about 5 or 6 ounces of pus, and was situated at the under surface of the right lobe, anteriorly lined throughout, with a thick fibrinous exudation—*a communication was formed with the cellular tissue, surrounding the right kidney.* Adhesions were also formed with the Duodenum, and in this situation the abscess pointed. Gall Bladder large, containing dark tenacious bile. The hepatic, cystic and common ducts were quite pervious, an opening had also formed by which this *abscess communicated with the hepatic vein at its junction with the vena cava.*

CASE OF HEPATIC ABSCESS, SIMULATING VENTRAL HERNIA.

By Allan Webb, Esq.

August 1st. 1841. 3 A. M. Cal. gr. x. Ant. Tart. gr. ¼ Pulv. Jalap. ℈i."*now.*" Ol. Ricini ℥iss. Repeated at 12 o'clock Inject. Sol.Mag.Sulph. et Ol. Ricini "every 3 hours." Warm bath.	Ummer Doss, admitted into the Simlah Hospital. No evacuation from the bowels for seven days. The man is very much emaciated. A swelling about the size of a closed fist which has an elastic feel, exists under the margin of the ribs on the right side. It is not tender on pressure, is not red, nor hot, has been there five days only he says, belly feels as hard as a board. I never felt so inelastic an abdomen before. Has little pain, vomits his food. Tongue red, and broad. Pulse very weak.
2d. 8 o clock. ℞ Cal. gr. x. Jalap ℈i. Ol. Croton. gtt. ij. M. "*now*"	Same state.
Repet. Alia. 2 P. M.	Same state. *Rub one drachm of Croton Oil over the stomach, apply twelve leeches to tumor.*
4th. Inject. ad: O. vi. every 4 hours.	No change in the patient, One very slight stool. *Give a large injection from* 3 *to* 6 *pints three times a day, repeat medicines.*
5th. Repet. Inject. Ol. Ricini. ℥i. Tr. Opii. gtt. xx. M. "*now*"	Had two slight stools, swelling larger, a little manipulation was used, as I thought it a knot of the colon, gentle pressure on it caused it to disappear. The reduction was followed by much pain.
6th. Pil Croton. Senna mixture Repet. inject. Leeches viii. Epigast.	One stool, slight,—belly hard as a board, and tender.

10th. Leeches xij. Repet. Alia Med. No better, has had no proper stool yet. Tongue smooth, dry, red, elongated papillæ protruding from it. Complains of pain in abdomen, great thirst, takes no food. Belly very hard, loses flesh. Is in fact a mere skeleton.

11th 10 A. M. Same state, belly rigid. Face very anxious. Is sinking.

12th. Dead.

Post Mortem Examination.

Head. Not examined.

Chest. Right lung adherent to diaphragm over right lobe of the liver.

Abdomen. The muscles and peritoneum were adherent to the right lobe of the liver, which itself was also adherent above to the diaphragm, and this last as before stated with the base of the right lung ; moreover adhesions existed of the liver to the pyloric end of the stomach, to the transverse arch of the colon, to the neighbouring small intestines. From the stomach, even to the pelvis, the intestines were all matted together, the interstices between the cylinders being filled up by layers of lymph of a yellow colour ; particularly distinct *upon the generally brick-red surface of the bowel.* The lymph was generally firm. When the convolutions were forcibly separated, and slit open with scissors, the mucous coat was found entire. The whole bowel appeared softened or *rotten.* The peritoneal coat much inflamed.

A small abscess, filled with thick pus, had formed superficially, in the substance of the right lobe of the liver, eroding its substance to the depth of half an inch. Opposite to this, in a corresponding portion of the colon, ulceration had gone on through the mucous, and muscular coats. The peritoneal coat forming the only barrier to the evacuation of the abscess.

Another large abscess, of old standing, its walls being formed of coagulable lymph, at least as thick as a crown piece, existed between the upper convex surface of the right lobe, and the diaphragm ; in size about that of an extended hand, it was filled with watery sero-purulent matter, mixed with albuminous flakes. The surface of the liver not being even abraded. Texture of the liver healthy, except in the immediate vicinity of the abscess. The hepatic veins appeared to me to contain pus.

There was an abscess with rugged edges, in the cellular tissue external to the rectum: a fistulous canal led from this almost to the external integument. The anus was obstructed by piles.

Deductions.

1st. The swelling reduced was probably a fold of intestine adhering to the abscess on one side, to the wall of the abdomen on the other ; as I heard a gurgling sound upon its retrocession.

2nd. I did not know of the existence of either of these abscesses, and without some previous history could not suspect it, excepting from the rigid feel of the abdomen.

3rd. Both abscesses were of some standing. One had existed perhaps a year, neither evacuated *(were they derived from the fistula in ano.)*

4th. Sero-enteritis, and muco-enteritis, might have been inferred from the state of redness and elongated papillæ of the tongue, but so little was the *tenderness,* I did not think the disease so great.

5th. The violent purgatives did more harm than doing nothing : they disturbed the efforts of nature; which were manifest in the adhesion of the colon to the small abscess, and the ulceration of its coats, preparatory to evacuation of the pus.

6th. Leeching. Cal. cum Opio, and rest, would have been the proper treatment.

DYSENTERY, WITH LARGE ABSCESS IN THE LIVER ILLUSTRATING No. 157.

By W. N. McGregor, M. D. Surgeon, 1st E. L. S.

July 28 Mittatur sanguis. ℞ Pil. Hydrarg. gr. x. Tinct. Hyosc. ʒi. Pulv. Ipecac. gr. ii. Syrup. Simpl. ʒii.M. ft. Haustus statim sumend InjiciatEnema Anodyn.	John Smith, private, 2nd Company, aged 27 years. Was admitted on the 26th with Dysentery of a very aggravated form, attended by excruciating pain in the abdominal region resembling peritonitis; he was bled to lb. iiss. and again in the evening to lb. j: the whole abdomen was blistered and he had the sedative draught as well as Ol. Ricini, the stools consist chiefly of blood and are attended by great tenesmus: states that he has now no pain in the abdomen, except the heat caused by the blister which has risen well. The stools are now repeated every ten minutes. The first cup of blood drawn yesterday morning exhibited the buffy coat; the crassamentum of the rest was firm, the pulse is hard and somewhat bounding, he had leeches applied to the verge of the anus twice.
29th. Rept.Enema Anod Sum. Pil. Sedative.	Had excruciating pain, and tenesmus yesterday, was bled, had Anodyne Enemata twice, with the Sedative Pill, is easier now, and has slept, but the stools are bloody and mixed with hepatic bile, tongue blanched at the top and edges.
30th. Rept. Enema et Pil. horâ meridie,	Had the Sedative Pills 3 times with anodyne injection morning and evening, has little tenesmus; stools contain feculent matter and a large quantity of blood
31st. Cont. Pil. et Enema Omni Sextâ horâ	Bowels purged, but still blood in the stools.
August 1st. ℞ Opii. gr. iij. Pulv. Ipecac. gr. j. M. 1 pint of Beer.	Skin moist, pulse soft, regular stools passed without slime, feels quite easy.
2nd. ℞ Ol.Ricini	Stools thin, passed with little straining, is very weak.
3rd. Rept. Pil. Opii gr. iii. et Ipecac. gr. i.	Stools thin, feculent matter with some slime, is cool, took the Anodyne Enema last night.
6th. ℞Ol.Ricin.Aq.Menth. aa. ʒi.Tinct. Hyosc. jʒ.M. statim sumend.	The stools thin slimy matter, he complains of no pain, there is no blood nor mucus in the stools, has had the Enema to-day.

12th. Enem. Anodyn. p. r. n. Sulph. Quinin. gr. x. statim. ℞ Opii. gr. vj. Pil. Hydrarg. gr. xii. Pulv. Ipecac. gr. iij. Sulph. Quinin. gr. ix. Ol. Anisi gtt. vj. M. divid. in pil. vj. sumat I. omni hor.	Yesterday there was great congestion about the liver, and the pain so acute as to indicate inflammation, he had leeches applied and a blister, he took the Sedative Draught in the evening, which produced frequent alvine evacuations mixed with hepatic bile and attended by great straining; this morning he took a Sedative Pill and had the injection, has now no uneasiness about the liver, there is no blood in the stools, tongue blanched, forehead bathed in perspiration, pulse small. (2 pints beer allowed.)
17th. ℞ Ext. Hyos. Pil. Hydrarg. Ext. Gent. aa. gr. v. Divid in pil. iii. sumat j. ter indie.	Is very weakly, but there is no blood or mucus in the stools, the skin is natural, sleeps indifferently.
28th.	Died about 11 A. M.

Autopsy.

Abdomen. The liver formed in its right lobe one large abscess.

Colon on its mucous surface presented small granular points, but there was little appearance of inflammation or its effects.

Remarks. This case on admission was well marked Dysentery and was subdued by copious and repeated bleeding; the liver became involved when our patient was too weak to admit of further general bleeding.

A CASE OF TUBERCULATED LIVER AND PANCREAS, NO. 169.

By Dr. Stewart.

"The subject was an old Hindoo, who had probably never tasted animal food or spirits in his life. He stated himself to have been only ill for a month. During the few days he remained in hospital previous to his death, nothing of course could be done for him. On dissection the diaphragm adhered firmly to the liver, by which it was forced up, so as greatly to contract the size of the thorax. The liver likewise occupied the whole of that portion of the abdomen above the navel; on removal it weighed 8 lbs. and a half, and measured 14 inches in its long axis, and 9 in the other. It was indurated in substance, throughout of a pale livid, and mottled color, and thickly studded with white or yellowish tubercles of various sizes, from that of a millet seed to that of a filbert. The cystic duct was compressed by a round white hard gland, about the size of a hazel nut; another gland considerably larger pressed against the ducts near their junction, and several others of a similar nature, were found in the capsule of Glisson. The gall-bladder contained a biliary calculus, and the hepatic artery was unusually small. *The pancreas was completely disorganised, stretching down the left side of the spine to the brim of the pelvis.* It was firmly bound down by the mesentery, and seemed to consist of numerous smooth round hard tubercles. The mesenteric glands were all swelled hard and white, like those in the capsule of Glisson, and were probably in a schirrous state. Dr. Stewart's description was accompanied by a drawing by a promising young artist, Mr. Woolnorth, which will be acknowledged in its proper place†."

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* Madras Quarterly Medical Journal, vol. 2. p. 232.

† Transactions of the Medical and Physical Society of Calcutta, vol, viii. part i. Appendix, page xliii.

ABSCESS IN THE LIVER BURSTING INTO THE LUNG. SEE NO. 555.

(by Dr. Jackson.)

This man had been suffering from hepatic disease for some months, was an old resident in Bengal, and a hard liver. On his admission into Hospital there was great fulness on the right side, cough with some symptoms of pyrexia, but the stages appeared too far advanced to require active treatment. After he had been in Hospital a week, he began to expectorate, and suddenly brought up a pint of matter from the lungs.

TUBERCULAR LIVER. No. 552.

Clinical report by Mr. Wambeck, Ceylon Student.

Saboon, a native of Cannanore, aged 19. Seacunny by occupation, arrived at Calcutta about a fortnight since, has been ailing for the last two months with pain of right side.

October 8th, 1841. Ol. Ricini ℥j. s. Hirudines vj. to the pained part.	*Present condition*, body very much emaciated, eyes jaundiced, great enlargement of the liver, which can be felt extending across the whole of the epigastrium exceedingly hard to the touch, bowels irregular, and stools clay colored, tongue pale and coated with yellow fur in the centre, appetite impaired, urine high colored, pulse feeble, breathing oppressed.
9th. Pil. Hydrarg. gr. iv. Ext. Colocynth. Co. gr. vj. in 2 Pills.	Very little change. Bowels three times moved by the medicine—repeat the leeches.
10th. Omit. Pil. et rept. Hirudin.	Much the same, rather less pain on pressure. Bowels open.
11th. Rep.	Less pain on pressure, fulness and hardness the same—no change in the color of his evacuations, urine very high colored.
12th. Rep.	Appears very weak, pulse small and thready, no change in the abdominal tumor.
13th. Pulv. Jalap. Co. ʒss.	Bowels not free, complains of much abdominal uneasiness.
15th. Cont. Med.	Very low to-day, the smallest quantity of food makes him uneasy. Bowels free.
16th. Cont. pil.	Bowels open, the jaundiced state of the eyes appears to be increasing, abdominal fulness and hardness the same as before.
17th, to 20th.	Very little change. Bowels kept open by the medicine.
22nd. Cont. Med.	Bowels free, no improvement—on the contrary is daily losing flesh.
23rd.	Very low, stomach rejects food. Jaundice increasing, bowels open, stools the same.
24th.	Is sinking. 25th Ibid. 26th died.

Autopsy—Body. Examined 10 hours after death. On laying open the abdominal parietes a considerable quantity of straw colored serum escaped from the abdominal cavity. The liver was found enormously enlarged, indurated, of a lemon color, and studded all over with tubercles. Gall bladder entirely empty, stomach contracted, and pressed down over the spleen, the latter nearly of the usual size but soft and pulpy ; no adhesions between the liver and parietes ; lungs healthy, but pale, and small in volume, from the great pressure of the liver ; a small quantity of serum in the cavity of the pleura ; heart small, but otherwise natural. See No. 552 p. 259.*

TUBERCULAR LIVER. SEE NO. 169.

Clinical Report by Mr. W. Lazarus, Student of the Col.

September 14th. Jacob Strong, Æt. 41. A weak, sickly-looking Dutchman, steward on board the "Oxford," was admitted into the College Hospital yesterday evening labouring under ascites, of three months standing : he cannot assign any cause for the disease, has not been sick this last twelve-month. Urine is scanty, complains of pain in the region of the bladder when passing his urine. Breathing is slightly impeded, skin dry, tongue flabby and white, bowels moved only once yesterday, pulse small and weak, abdomen enormously distended, the skin on it, is shining, dry, and smooth, the superficial veins are very much enlarged ; no enlargement of the viscera perceptible, owing to the distention ; fluctuation distinctly perceptible ; feet œdematous, complains of great weakness, connot stand up erect without support.

15th. Much the same : was tapped about 2 inches below the umbilicus and nearly 5 gallons of fluid removed : after the operation he breathed with greater freedom. Viscera do not appear enlarged, the abdomen still contains a large quantity of fluid.

September 16th.
Pulv. Jalap. Comp. ʒj.
P. Scillæ gr. ij. now
℞ Pil. Hydrarg. gr. v.
Pulv. Scillæ gr. ij at bed time.

Feels much easier since the operation. Breathing is now pretty free, urine is scanty, bowels confined, skin hot and dry, pulse quick and small, tongue flabby, feels very weak, feels chilly when he sits up.

17th.
Continue medicine as yesterday.

Breathing rather difficult to-day, urine still scanty. Bowels moved three times, skin a little moist, pulse small, tongue cleaner to-day. Complains of pain in the right hypochondriac region, increased on pressure.

18th.
Continue Pills and Diuretic mixture.

Breathing much the same : urine passed in large quantities, skin moist, tongue white, complains of great weakness so much so that he cannot raise himself up in his bed ;—says the medicine he takes weakens him great-

19th.
10 A. M.

In a very bad state this morning, was taken ill and faint about the middle of the night, at present he is quite insensible. 11. A. M. *Died.*

Sectio Cadaveris. On opening the abdomen I found about six gallons of a serous fluid contained within its cavity. The *Liver* was lobulated and much smaller than natural, of the peculiar kind termed *hob-nailed.*—*Spleen* much enlarged with white spots externally.—*Kidneys* rather small but otherwise healthy.—*Lungs* were healthy. Tuberculous deposits in its root, as also in the mesentery. *Heart* smaller than natural and a general exsanguineous state of body.

ABSCESSES IN THE LIVER. ILLUSTRATING. NO. 1437.

Hy. Bedborough, Esq., Assist. Surgeon.

12th October, 1842. V.—Appl. Emp. Lyttæ. Abdomin. Ipec. Pulv. gr. v. Pil. Hydr. gr. vj. Quinin. Sulph. gr. iii. ft. Pil, every 3 hours. Sulphur. ʒii. early in the morning.	Michael Shield, private in 8 company, aged 21 years, admitted.—He has been under treatment for fever and dysenteric purging for nine weeks, on the march from Cawnpore; he has been to stool many times to-day but passed nothing—has no pain on pressure over the belly, none at stool, pulse small and frequent, tongue brown and moist.
13th. Venæ Sectio, ad ℥xvi. Cont. Pilul.	Had eight stools this morning consisting of mucus and blood, their passage unaccompanied with pain or straining, tongue much loaded with brown mucus, pulse 96 full and sharp.
V.—Cont. Pil. ℞ Sulphur. ℥ii, stat S. Liq. Plumbi ʒii. Aquæ. ℥iv. M. Inject now. Sulph., ʒij. Pulv., Rhei. gr. x. " Early in the morning." Empl. Lyttæ Capit.	Has passed 5 small stools like those in the night—has no pain. Has been delirious a great part of the day, fever returned at 12, has now some heat of head and is in a perspiration, tongue brown but moist, pulse 100 and small.
14th. Cont. Pilul. Venæ Sectio ad ℥xij., " when the fever returns."	Has passed several stools in the night consisting of a brown fluid with a quantity of feculence and a small quantity of blood, has now some straining at stool, tongue cleaner, pulse 96 with a little hardness.
V.—Cont. Pilul. Venæ Sectio ad℥xvj.	Had no return of fever, and was not bled, has passed 12 fluid stools with some feculence, no blood, has no pain, pulse 100 and hard, tongue cleaner.
15th. Cont. Pilul. Sulph. ʒjss., at noon.,	Slept well, bowels moved six times in the night stools consisting of fluid feculent matter, and a few drops of blood, pulse 80 and soft, tongue cleaner.
V.—Venæ Sectio ad ℥xiv. Cont. Pilul.	Has had many stools in the day, consisting of a large quantity of thick mucus, and a trace of blood, has no pain on pressure over the belly, or when passing the stools, tongue cleaner, pulse again hard and frequent.
16th. Hirudines iv. to " the Cœcum and iv." " to the transverse colon." Cont. Pilul. Sulphur. ʒij. at noon.	Had no sleep, bowels moved eight times, consisting chiefly of mucus, no blood, pulse 86, full and a little hard, tongue much cleaner, has no pain on pressure over the belly, none in passing his stools, blood took last evening is cupped and buffed.
V.—Cont Pilul.	Has had seven small stools in the day without any blood or mucus, tongue cleaner.
17th. Cont. Pilul. Sulphur. ʒiss " at noon."	Has had four feculent stools in the night, without any admixture of mucus or blood, tongue cleaner, pulse soft.

V.—V. S. ad ℥xij. Calomel. gr. v. Quinin. Sulph. gr. iv. Pulv. Ipec. gr. iv. stat.	Has had six scanty stools consisting chiefly of mucus and blood, had a severe paroxysm of fever at 2 P. M. He is now hot, pulse quick, full and hard, tongue brown and dry, has no pain or tenderness on pressure over the belly.
18th. Cont. Pilul. Quin. " at 11 A. M." Sulphur. ʒiss. Pulv. Rhei gr. x. " at noon."	Had several feculent stools in the night without any trace of blood, tongue moist and much cleaner, has some pain on pressure over the cœcum, pulse 80, soft.
19th. V.—Empl. Lyt. Nuch. Hirud iij. temporib. Quinin. Sulph. gr. iv. Calomel. gr. x. Pulv. Ipecac. gr. iij. every three hours.	Had a severe exacerbation of fever at noon, he is yet hot, pulse quick and rather hard, tongue brown and dry, he appears stupid, the pupils are dilated, bowels moved four times, stools consisting of a brown fluid feculence, and black bile.
20th. Cont. Pilul Quinin. Sulph. gr. iv. at 10 and 11. Rept. Powder at noon. Hirudines viii. to the cœcum.	Slept well, bowels moved four times, stools consisting of dark fluid, with some feculence, no blood nor mucus, has pain on pressure over the cœcum, tongue much furred but moist. Died at 11 A. M.

Autopsy. The subject was much emaciated : the mucous membrane of the colon throughout its whole course highly vascular, and in the cœcum, ascending and transverse colon, there were numerous ulcerations ; the muscular coat of the cœcum was much thickened,—the small intestines were healthy, but some of the mesenteric glands were much enlarged, and in the centre of one, there was about a drachm of thick pus—the Liver presented a healthy appearance, but on cutting into the right lobe, four small abscesses were found, each containing about half an ounce of pus. The gall bladder was nearly empty—the stomach healthy.

ABSCESS OF THE LEFT LOBE OF THE LIVER, SEE NO. 806.

By W. Craigie, Surgeon.

November 1st 1842. V.—℞ Calomel gr. x. Opii gr. ij. M. ft. pilulæ stat.	Henry Crawford, Private No. 2 Company. Æt. 21 years. Admitted. Complains of being much purged with straining and pain in the abdomen. Pulse frequent but very weak, Skin cool, Tongue clean, very delicate, and temperate in his habits ; a recruit.
2nd. Hab. Ol. Ricini ℥j. statim. Spoon diet.	No stool since admission, pain in the abdomen relieved, pulse frequent, face flushed.
3rd. P. Jalap. Co. ʒj. stat. Enema Anodyn. h. s. Pulv. Doveri. ℈j. h. s.	Four stools in the night with straining ; Pulse rather hard, frequent, tongue slightly furred, skin of abdomen warm.
9th. Rept. Ol. Ricini ℥j. statim. Appl. Fotus Calid.	One stool in the night : complains of pain in the epigastric region, increased on pressure ; muscles of the abdomen tense, Sk. warm and dry, P. small and freque, T. furred. Oil did not operate yesterday.

10th. Empl. Lyttæ. part. dol. Habt. Haust. Rhei. Com. st.	Has considerable pain and swelling over the right side, a little below the margin of the false ribs, extending over the epigastric region, 2 stools in the day and one at night, passed without straining, P. extremely small and frequent. Sk. cool but dry, T. furred.
V.—Ol. Ricini ʒj. Terebinth ℥j. Statim. Enem. Purg.	No satisfactory operation from the draught, otherwise as in the morning.
11th. ℞ Calomel. Aloes aa gr. iv. Scammon. gr. ij. Ext. Coloc. Co. gr. vi. M. at 1 P. M. Appl. Fotus Calida.	Five stools from the Oil; swelling more circumscribed, and rather more prominent and painful, P. frequent, but without strength, abdomen tense, Sk. warm and dry, T. slightly furred.
12th. Accipt. Enem. Emol. statim. Cont. Fotus Calid. et Cataplasm. Em. 3m. Port,—A. Root.	Swelling in the epigastrium increased. Pain, on pressure, over the whole belly, P. freqt. and very feeble, countenance shrunk, three stools in the night, not preserved, little or no rest during the night.
V.—Rept. Pilulæ h. s. ut heri. Accipt. Enema Anodyn. Cont. Cataplasma.	No improvement, tumour prominent, distinctly circumscribed, and softer; but without fluctuation, occupying the epigastric region over the site of the centre of the arch of the colon; edge of the liver not perceptible under the false ribs of the right side, nor any obvious enlargement of that organ, generally; great emaciation and prostration of strength; has taken all his wine with relish. Has had several stools, not preserved.
13th. ℞ Inf. Cinchonæ ℥iss. Tinct. Cinchonæ Co. ʒj. Acid. Sulph. D. gt. xx. ft. haust. bis. in die.	Slept pretty well in the first part of the night, but restless and uneasy afterwards: abdominal tumour less prominent and still softer, tenderness on pressure undiminished, P. extremely feeble, Sk. cool, has perspired profusely during the night, much exhausted.
14th. Cont. Infus. Cinchonæ. Accipt. Enema. Emoll statim.—4m. Port.	Spent a restless night, Pulse more freqt. and stronger, no stool, body warm and moist, hands below the natural temperature, pain of belly as yesterday, feels weaker. T. red and coated in the centre.
Opii. gr. ij.h. s. s. Gin ℥iij. Lime Juice q. s. Water ℥ij. M.	Tumour decidedly less prominent, and less tender to the touch, otherwise his condition is much the same P. very freqt. and without volume or strength, rejects the wine.
15th. Cont. Infus. Cinchonæ Rept. Opii. h. s. s. Cont. Gin Punch.	A restless night, but feels easier this morning, three stools since last night not preserved, P. frequent and feeble Sk. cool but dry, belly less tender to the touch, but tumour of the same size as at last report, stomach tranquil since he took the Gin Punch.
16th. Accipt. Enem. Emoll. stat. Cont. Fotus. Calid. ter die.	Slept tolerably well, Sk. warm and moist, pulse very frequent and small, three stools in the night not preserved, T. clean, tumour of the belly of the same size but less painful on pressure, cannot bear pressure on

Omit. Inf. Cinchonæ Co.
Rept. Opii. gr. ij. h. s.
Cont. Gin.

the lower part of the belly, which is full and tense, rejects the Infusion of Bark but retains the Gin Punch.

17th.
Cont. Gin Punch.
Arrow Root.

A bad night, tumour of the belly less prominent and less tender, but considerable pain on pressure over the lower belly, skin warm and moist, P. extremely quick and feeble, three stools in the night, said to be watery, no irritability of stomach, frequent hiccough, obviously sinking.

V.—Rept. Opii. gr. ij. h. s. s.

Much as in the morning, P. extremely freqt. but without volume or strength, Sk. warm and moist.

18th.
Cont. Gin. Punch.
V.—℞ Tinct Opii.
Tinct. Hyos. aa. ♏ xl.
Mist. Camphoræ ℥iss.
M. ft. haust. h. s. s.

Is gradually sinking, P. indistinct and extremely feeble, Sk. warm and dry, four stools in the night and three since morning not preserved, feels very little pain in the belly, is frequently troubled with hiccough especially after taking a drink, great emaciation.

19th.

4 A. M. Died.

Sectio Cadaveris 8 *hours after Death.*

Head. Not examined.

Body. Much emaciated.

Abdomen. On cutting through the integuments from the top of the sternum to the pubes, scarcely any cellular substance was found remaining and even the muscles covering the ribs, and forming the anterior parietes of the abdomen, were attenuated almost to nothing. The small intestines, exhibited marks of recent inflammation throughout, and were of a pink hue. On elevating the cartilaginous portion of the ribs, which were found firmly adherent to the peritoneal covering of the liver, a large abscess was found occupying the whole of the left lobe of the liver, the walls of which were lacerated by the operation, and discharged a large quantity of pus;—the peritoneal lining of the abdomen was greatly inflamed.

Chest. The organs of the chest apparently healthy, with the exception of old adhesions of the left lung to the pleura costalis.

A LARGE ABSCESS OF THE LIVER BURSTING INTO THE ABDOMEN ILLUSTRATING NO.—.

By John Sutherland, Esq. Assist. Surgeon.

9th. November, 1842.
Purgatives, alteratives, extensive and persevering counter-irritation over the liver.

Private J. Cunningham, 1st European L. Infantry admitted.—The history of this fatal case extends throughout a period of several months, during which time he was under treatment by various Medical Officers, attached to the 1st. E. L. Infantry, he is now believed to be in an advanced stage of hepatic Abscess; there is fulness and tension of the right side, Œdema of the legs, foul tongue, appetite good, bowels free, motions feculent. pulse frequent and soft; has occasional pain in the region of the liver.

19th.
Haust. Anodyn. statim.
℞ Ol. Ricin. ℥vi.
Tinc. Hyosc. ℥vi. C.M.
Emp. Lyttæ Abdomin.

The abscess has probably burst into the abdomen as intense peritoneal inflammation has ensued. Has great pain, fulness and tension of the abdomen, pulse quick feeble, and tongue dry, red and clean, bowels relaxed, motions feculent.

V.—℞ Pulv. Ipecac. gr. iij.
Ext. Hyosc. gr. iv.

Tongue foul and dry, great pain, has had no stool, has taken no food.

20th. ℞ Pulv. Ipecac. Ext. Hyoscyam. aa gr. ii. 2nd horâ Enema Anodyn.	Passed two copious thin stools in the night. Belly distended, hard and tender, blister rose well, is in great distress, pulse feeble, scarcely perceptible at the wrist, tongue dry and foul, extremities cold and clammy.
22nd. Cont. Pil. Enema Purg. cum Tinct. Opii, ʒss. Ol. Ricini, ℥iss. M. statim.	Is moaning, and is in a state of great distress, belly hard, inelastic and painful ; tongue dry and red, pulse feeble, had no stool, distress greater, thirst urgent.
23rd. Cont. pulv. Ipecac. gr. ii. ter. hor.	Two thin feculent stools, thirst less urgent, in all other respects as on last report.
V.—Cont. Med.	Three thin stools with mucus mixed, is moaning, weaker, pulse 110.
24th. Cont. Med. Wine. ½ M. 2nd. hor.	Was purged frequently in the night, is decidedly worse, pulse 120, weak and compressible, is moaning, anxious, tongue dry, great fulness and tension of the belly.
10 A. M.	Is sinking.
	Died at 1 P. M.

Sectio Cadaveris 8 hours after Death.

Head. There was no morbid appearance observed in the head.

Chest. The right lung was pushed high up in the chest by the liver, but not apparently diseased.

Abdomen. On opening the abdomen a large quantity of sero-purulent fluid was found, and it was at once observed that an enormous abscess had burst into the cavity of the abdomen. The abscess was formed in the right lobe of the liver, was very large and contained much purulent matter, the size of the liver independent of the abscess was much above the natural standard, the walls of the cavity adhered firmly to the colon, which was thickened, but no communication could be traced between the cavity and the intestine. The peritoneal surface of the intestines was covered in several places with coagulable lymph, which glued them together, and the peritoneum generally was inflamed and coated with patches of lymph in several places. The mucous coat of the intestines was morbidly vascular in a few places. Spleen enlarged.

CASE OF THREE ENCYSTED ABSCESSES IN THE LIVER, ALSO ABSCESS IN THE BRAIN WITH PARALYSIS. ILLUSTRATING NO. 809.

By Dr. Jackson.

November 4th. ℞ Hydr. Submuriatis gr. x. h. s. ℞ P. Jalap. Co. ʒi. Cras Mane. Hirudines xx. to the abdomen.	Philip Pitten, Æt. 33, an English Seaman, was admitted this evening into the Hospital, complaining of acute pain in the left lobe of the liver, increased a great deal on pressure. The right lobe is not tender, but seems rather full, the abdomen is very hot, and tense, feels nausea, has not pain in the shoulders, tongue brown, skin hot, cannot lie on the left side comfortably. Has been ill for about three days. The bowels of the patient are regular, pulse quick and full.
5th. Hirudines xviij. to the abdomen. ℞ Hydr. Submuriatis Ext. Colocynth. Co. aa gr. viij. bisdie sum.	*Feels* better to-day, pain *in the left lobe of the liver* still exists; there is also fulness of the lobe, pulse full and quick, abdomen hot and tense, no nausea, slept pretty well last night.

6th.
Blister to right side.
Ung. Hydr. ʒi. to the left side.
Hydr. Subm.
Ext. Colocynth Co.
āā gr. viij. h. s.

Better to-day, very little pain felt in the region of the liver, but there exists a good deal of fulness :—pulse small and quick, tongue brown, no appetite, feels slight nausea, no heat about the abdomen, slept well last night, lies always on his right side.

8th.
Continue Medicine.

Feels better to-day, no pain in the abdomen, but there is some fulness about the *right hypocondrium*, pulse small and quick, tongue brown, no appetite, no nausea, slept well last night.

13th.

Continues to do well, no fulness of the liver apparent, is able to lie on any side without the least inconvenience, bowels regular, tongue clean, skin cool, pulse natural.

14th.

Feels quite well *and wishes to* leave Hospital. Discharged.

Re-admission.

20th.
Hirudin. ij. to each temple.
Head to be shaved.
Emp. Lyttæ. to the nape of the neck.
℞ Pulv. Scam. Co. ʒss.
Stat. sum.

Philip Pitten, Æt. 30, re-admitted at one P. M. with the following symptoms, of four days standing. Loss of motion in the right hand, and corresponding leg, the sensation of which is perfect ; difficulty of speech, tongue on protrusion inclines somewhat to the right side, is white in the centre, and red about the edges, forgetfulness is a very prominent symptom. He is unable to assign any cause as to the affection, and his statements vary much at different times. Head hot, pupils contracted, skin cool, pulse hardly affected.

21st.
Cupping Glasses behind the ears.
℞ Pil. Hydr. gr. x.
Pulv. Scill. gr. ij.
Sinapisms to the leg.

Patient is much in the same state, save that his head is cooler, and that he has been freely purged by the compound scammony powder, stools are watery, and of a greenish colour, slept pretty well.

22d.
Scam. Comp. Rept.
Continue Blue Pill and Squills.

Patient is much in the same state, bowels moved about five times. Head slightly hot, skin cool, pulse small and weak, is unable to move either limb of the right side.

23d.
Seton to the neck.

Patient looks quite drowsy and stupified, and does not answer any questions. Head very hot, eyes somewhat injected, pupils contracted, bowels have been freely acted on, motions voided in bed.

25th.

Patient lies perfectly insensible in bed, pupils contracted, head and skin cool, pulse small and somewhat accelerated, voids his urine and fæces in bed.

Enema Purgans.
℞ Ung. Hydr. ℥i.
Hydr. Pot. ʒi. ɱ
‘· to the blistered skin.

In the same state as last report, obliged to administer support through the rectum, pulse steady, urine and fæces voided in bed.

26th.

No improvement. 27th Continue Medicine. Continues in the same state.

28th.

Expired at 4 A. M.

Autopsy at 11 A. M. *same day. Conducted by Professor Webb.*

General appearance of Body. Greatly emaciated. Sloughing state of integuments over sacrum.

Head. The calvarium was easily removed, the adhesion to the dura mater being less than usual. There was effusion, pretty generally of yellow serum beneath the arachnoid, and the pia mater was universally congested, and minutely injected ; some opacity was observed here and there of the arachnoid. On slicing off the left hemisphere of the brain, on a level, or nearly so, with the lateral sinus, the cut surface was observed to be distinctly softened in the centre, and the white substance unusually injected with blood. The softening decreased in every direction on leaving the centre, and on examining the portion of brain removed, it was found almost diffluent in its centre. On cutting into this, an ounce of well digested pus escaped from an abscess formed in its interior. The right hemisphere seemed even firmer than natural, deeply injected even in its white substance ; with such general exudation on slicing it, as to appear confounded with the cineritious portion, effusion of limpid fluid unto the ventricles, choroid plexuses conjested ; *spinal marrow* appeared softened, in its centre. The pia mater injected even as far as the cauda equina.

Chest. Right lung healthy, universal adhesions of the left to the thoracic parietes, general congestion and inflammation of its substance, strongly adherent to the pericardium and diaphragm. *Heart,*—right side gorged with blood, pericardiac covering thickened by opacities ; substance generally inflamed and softened, endocardia of both auricles opake, with opacity and thickening of tricuspid and mitral valves, which were also fringed with pale vegetations, right ventricle had an organized coagulum, prolonged into the pulmonary artery, having strong adhesions, and covered with black recent coagula in the right auricle and ventricle.

Abdomen. Liver unequal on its surface, right lobe enlarged, marked with whitish maculæ and striæ, soft and rapidly wrinkling by exposure to air adherent to the diaphragm, especially at the most anterior part of left lobe, on cutting through these adhesions, an abscess was opened, that was about the size of a closed fist, traversed by a band of vessels, lined by a cyst containing well digested pus. Another abscess existed in the right lobe, but to the left of the gall bladder, in size and shape like a goose egg ; another was discovered in the middle lobe, near the vena cava, also encysted, full of pus, about the size of a walnut. Liver softened and congested generally, stomach and bowels healthy, as far as external inspection might determine, kidneys very much congested, spleen healthy. Pelvic organs healthy.

HEPATIC ABSCESSES, ONE OPENED ARTIFICIALLY, TWO SPONTANEOUSLY. NO. 805.

By J. Jackson, Esq., M. B.

October 8th.
℞ Subm. Hydr.
Ext. Col. Comp. āā.
gr. viij. h. s. s.
9th.
℞ Magnes. Sulph. ʒj.
Infus. Sen. ℥ij.
ft. Haustus statim.

Charles Harrington, Æt. 33, a European Seaman, was admitted last night for hepatic affection, of six days standing. His abdomen is tense and resisting, there is pain, and fulness in the epigastrium and right hypochondrium. The pain is most severe in the former situation, he also complains of pain in his *left*

Hirudin. xii. part dolent. 1 P. M. Hirudin. xij. Colomel et Colocynth h. s. s. ℞ Ol. Ricini. Ol. Terebinth āā ℥i. Cras Mane.	shoulder, none in his *right*, cannot lie on the left side His urine is scanty, and high coloured, and his bowels are costive. Pulse rather full, not accelerated, Tongue furred, yellow in the centre, has been drinking very hard, prior to the attack. The leeches relieved him a good deal, and he is now able to lie on his left side.
10th. Hirudin xii. Emp. Lyttæ Epigastrio ℞ Pil. Hydrag. gr. vj. Pulv. Ipecac. gr. iv. Ext. Col. Comp. gr. ij. ft. Pil. ij. h.s.s.	Slept well last night, pain continues, can lie well on both sides, had one stool this morning, says he perspired profusely last night, tongue yellow, skin cool, pulse small.
11th. Pulv. Scam. Comp. ʒij statim. Repet Pil.	Pain still continues, had no stool since yesterday morning, skin cool, pulse small, tongue furred, yellow in the centre.
12th. Caustic Blister to the left side. Continue Pills.	Had no sleep last night, complains *of a pain in his left side extending from the Hypochondrium to the shoulder*. His bowels were moved three times. Pulse small, tongue yellow in the centre, skin cool.
13th. ℞ Pil. Hydr. gr. iv. Pulv. Ipecac. P. Opii. aa. gr. j. ft. Pulv. ter. die. sum.	Patient passed another restless night, and attributes it to pain occasioned by the application of the blister. Bowels moved three times, pulse small and feeble, tongue furred, yellow, skin cool.
14th. Pulv. Jal. Com. ʒi. 1 P. M. Cont. Pil. h. s.	Patient enjoyed a good nights repose, the pain in his side is very much diminished in severity, skin moist, tongue yellowish, pulse soft, compressible. Bowels not moved since yesterday morning.
17th. Hirudin.viij.Hyp. dextr Continue Pills.	Has a pain in his *right Hypochondrium*, very restless last night, bowels moved 4 or 5 times. Pulse feeble.
18th. ℞ Pulv. Jal. Comp. ʒi.	Complains of a pain extending *from the right to the left Hypochondria*, very painful at night ; had no stool since 1 o'clock yesterday, skin cool, pulse feeble, not accelerated, tongue clean.
19th. Continue Pills. ℞ Liq. Op. Sed. gt. xv. Mist. Camph. ℥ss.h.s.	The pain is not so severe, had two stools since last report.
24th. Continue Medicine.	Slept pretty well, the pain in his right Hypochondrium still continues.
25th. Caustic Blister to the right side. Continue Medicine. Hirudin. iv.to his side	Patient still complains of pain in the right side, complains of being troubled with starting while asleep there is considerable tension of the right rectus muscle, pulse feeble, skin moist, bowels moved twice, tongue.red at the tip.
26th. ℞ Pil. Hydr. gr. iv. Ext. Hyosc. gr. iij. Pulv .Ipecac. gr. ij. ft. Pil. h. s.	Patient says the application of the blister has afforded him considerable relief; says he perspired profusely all night, bowels moved twice, pulse feeble, skin clammy, tongue morbidly red at the tip, says he was sick at stomach yesterday both after dinner and supper although he took very little of either. The caustic

blister was countermanded, and he had 4 leeches.

27th. ℞ Pil. Hydr. gr. iv. Ext Hyoscyam. gr. iij. Pulv. Ipecac, gr. ij. ft. Pil. h. s.

Bowels moved several times last night, dejection watery, perspired profusely early this morning. He is at present cool, pulse slightly accelerated and feeble; there is increased fulness in the right hypochondrium, tongue red and glazed.

28th.

Patient feels much weaker this morning, perspired profusely last night, pain in his side continues, fulness has considerably increased, and fluctuation is distinctly felt, tongue morbidly red at the tip, and brownish in the centre, bowels moved twice yesterday, pulse small and feeble, great anxiety of countenance. Puncturing was proposed in order to let out the matter, as the only, though sorry chance for the patient. To this he readily assented. The integuments were then divided over the 7th rib. The incision being about an inch long, and the trocar introduced upwards into the abscess, and about seventeen ounces of healthy laudable pus was removed. The patient bore the operation with extreme fortitude, and expressed his thanks at the ease afforded him by it. The chest and abdomen were then secured by two broad bandages, and the canula secured in the abscess by means of strapping. The pulse was not affected by the operation.

10 A. M. Sago or Arrow-root, and Port-wine.

Patient dozed a little after the operation, looks cheerful, and says it afforded him comfort he was a stranger to for many a day. About three ounces more of healthy pus was discharged. Has taken his Port-wine, and is desirous of having more.

12 A. M. Continue Port wine

Abdomen rather tense, and in other respects continues in the same state.

10 P. M.

Rather restless, pulse somewhat accelerated, abdomen still tense.

29th. Continue, support of Portwine, and Sago. ℞ Acet. Morph. gr j. *ter die.* Body to be sponged, and warm fomentations to the abdomen.

The canula came away from the wound altogether, and the patient replaced it himself. Passed a restless night, pulse quick, and small, does not look quite so cheerful, the pus discharged was of a bilious hue, fingers cold.

8 A. M. Dr. Jackson removed the canula, abdomen not tense, does not complain of any pain in the part.

10 A. M. Pulse very quick and small, complains of thirst, fingers cold, discharge continues, and is of a bilious hue.

12 A. M. Very much in the same state, loss of voice.

4 P. M. Patient very low, and was very restless, discharge continues, and is slight, has been perspiring, pulse very quick and fluttering, bowels moved, tongue cold, as likewise the extremities.

10 P. M. Pulse fluttering, fingers shrivelled and cold, tongue and inferior extremities cold, articulates inaudibly, complains of thirst, great anxiety.

12 P. M. Patient sinking, no pain in his abdomen, which is not tense; bathed in a cold clammy perspiration, total loss of voice, motions for water

30th. Expired at 3 A. M.

Sectio Cadaveris. Six hours after death. On opening the abdomen, firm adhesion was observed between its parietes and that of the abscess; the abscess was as large as a man's fist, and was perfectly empty, adhesion had formed between the left lobe and the diaphragm, on tearing which another abscess of small dimensions was discovered, it however communicated with a large one which occupied the posterior part of the left lobe. The kidneys were also somewhat diseased. The heart somewhat enlarged. On the surface of the heart were seen some flakes of coagulable lymph.

For more minute account of the liver. See Preparation No. 805.

LOBULATED LIVER, AND DISEASE OF THE HEART. NO. 808.

Reduced from Col. register by Mr. De Vos Student.

September 23rd. V. S. ad. ℥ xvj. ℞ P. Jalapæ. Co. ʒi. P. Scillæ. gr. ij.stat. ℞ Pil. Hydrarg. iv. P. Scillæ. gr. ij. ter die.	James Graham was admitted this day into Hospital with swelling of the face, extremities and abdomen. The swelling pits on pressure. The abdomen has a fluctuating feel. The face is shining, and the lips pallid. Pulse full and sharp, tongue brown, skin hot, voids urine freely. Bowels are open, had previous to this, been once attacked with the same disease, and under treatment in the Bombay Hospital.
24th. ℞ Cont. Jalap. et. Scill.	The swelling not in the least reduced, pits still on pressure, tongue brown, bowels open, appetite good, pulse full and quick, sleeps well in the night.
25th. ℞ Pil. Hydrarg. gr. vj. Pil. Scillæ. gr. ij. n.	No improvement, bowels moved eight times since morning, pulse small and quick, tongue brown, slept well last night.
26th. Continue Medicine	Much better to-day. The puffiness of the cheeks diminishing, the thighs are less œdematous, but the calves are still hard and swollen, bowels open, tongue brown, urine ropy, and contains a good deal of albumen and gelatine.
27th. Continue Medicine.	Improving, bowels moved well from the purgative
28th. Pil. Hydrarg. gr. iv. Pil. Scillæ. gr. ij. P. Digital. gr.j ter die	Puffiness of the cheeks disappearing, and thighs less œdematous, bowels open, voids a good quantity of urine. Improving.
30th. Continue Medicine.	Daily getting better, bowels freely open, tongue clean, urine copious, skin moist and cool, pulse quick.
October 1st. ℞ Elaterii. gr. ¼. Zingib, gr. ij. every 3 hours, for 3 doses.	Legs and thighs less œdematous. Bowels open, tongue clean, urine flocculent and albuminous, appetite good, felt an oppression about the præcordia last night, and had slight dyspnœa, pulse quick.
2nd. Continue Medicine.	Improving. Had no oppression, nor difficulty of breathing yesterday, tongue clean, bowels open, sleeps well.
3rd. Continue Medicine.	Much the same as yesterday, slept badly.
4th. Continue Medicine.	Was purged a good deal last night, and this morning had again a slight degree of oppression, but no dyspnœa, sleep was disturbed owing to the purging.

Nov. 6th.
℞ Ung. Hydrarg.
mh. aʒj.
To be rubbed over the abdomen.
Continue Medicine.

Up to this date he appeared to improve by the persevering exhibition of elaterium. Felt rather unwell last night, could not sleep well owing to oppression about the chest. At present feels rather dull and sleepy. Pulse small and quick, tongue white, abdomen less in size, legs still œdematous, urine not so copious as on the other day.

7th.
Continue Medicine.

Slept all yesterday and this morning, feels drowsy, pulse small and quick.

8th.
Shaved the head, blister to the nape. of the neck.
℞ Hydr. Submur gr. x.
Ol. Tiglii.C.gtt. iij. et
Castor Oil and Turpentine enema.

Was suddenly taken with a severe fit of convulsions and died after having remained quite comatose for about six hours.

Sectio Cadaveris.

The *abdomen* contained a large collection of water. The intestines quite pale and bloodless, but healthy internally. The liver small, lobulated and soft, very easily broken, thekidneys pale, and rather healthy. Found a large collection of serum in thecavity of the *pericardium and chest,* the heart soft, flabby. The tricuspid valves cartilaginous. The semilunar valves both of the aorta and the pulmonary artery had deposits of osseous matter on their surfaces. The head was not examined.

INFLAMMATORY CONGESTION OF THE LIVER, CONSEQUENT ON DISEASE OF THE HEART. NO. 819.

By Allan Webb, Esq.

Serjeant H.—H. M.'s 49th, admitted into Garrison Hospital, with acute pain in right side, which "brings on a smothering cough," .when he breathes; prevents his lying on either side.

He has an anxious expression of face, glassy looking eye, fair complexion, grey hair, 43 years of age, 15 years in India.

Has been healthy, till he went two years ago to China with his regiment. After the taking of Canton, was attacked with pains in the limbs, "in all his bones;" was sent here in March last.

Since then, he has been three times in General Hospital, "once for soreness in belly," twice for swelled legs;" bowels all this time disordered. Three or four stools every night, and as many in the day. Diarrhœa stopped six weeks ago; but never felt well since, has had no appetite.

August 3rd.—Pain came on suddenly at 11 o'clock last night, continued all night, till his admission this morning. *Now* cannot turn to either side, without pain. Right side is enlarged, intercostal spaces effaced, parietes of the abdomen hard and rigid, resisting slightest pressure, which also produces great pain. Liver felt projecting three fingers breadth below the margin of the ribs on each side; son-mat on percussing right thorax, is heard much beyond the natural limits. Face anxious and distressed, complexion muddy, pulse quick and compressed, with little power, skin harsh and dry, urine very high colored, bowels confined. Tongue chapped, red and lobulated.

V. S. ad. ℥. xx. Ant. Tart. gr. iv. Aquæ ℥ viii. M. a wine glass full every 4 hours. Cal. gr. x. h. s. s.	Pulse more full and soft after V. S., and great relief to the pain.
Aug. 4th. *Morning.* Leeches xx to the side. Repet Mist———— Pulv. Jalap Co. ℈ii.	Feels much relieved as regards pain, muscles still rigid on pressure, pulse small and feeble, very sick from medicine. Bowels not freely purged.
Evening. Cal. gr. viii. Ext. Coloc. Co. gr. x. ft. Pil iii. "*now.*" Sinapism to the side.	Less pain and tenderness.
Aug 5th. Mist. Purg. *ter die.*	Much relief to the pain, liver felt to have receded considerably, feels very hard. Less tenderness, stools very light colored.
Pil Hyd. Ext. Coloc. ā ʒi. in Pil xxiv. "two or three times a day,	Doing well, has a more lively look, and clear complexion. Stools have more bile, liver decreased, intercostal spaces well pronounced again. Pulse much the same, urine clearer, appetite better than for months past. From this date he went on improving.
16th. "Continue the Pills at night only."	Appetite good, feels better than for six months past, mouth tender, liver soft, more on a level with the ribs, skin soft.
18th. Omit Pil.	Bowels purged three or four times in the day as many stools also at night.
22d. Pil Rhœi Co. ʒi. Quinin. Ext. Gent. āā℈i. Pulv. Ipecac. gr. xij. in Pil. xxiv. 2 *ter die*	Bowels still purged, a good deal of rigidity about the pit of the stomach, walked about as he says "quite lively."
Aug. 24th.	Discharged, much relieved :—but liver still projects lower than the ribs.
Oct. 1st.	Sent to General Hospital.
Re-admitted.	On this 2d admission never could rest after sunset. Attendants called up to him eight or ten times at night. Complains of pain in legs and especially loins and back, with headache, &c. Died at Genl. Hospital

N. B. He appears to have had, by the account with which I have been favoured, an epileptic attack followed by delirium and death.

Autopsy shewed serous effusion into the ventricles, with effusion of coagulable lymph on the brain generally. Universal adhesion of the right lung and hepatization of its lower lobe.

The Liver healthy. Enormous disease of *the heart.* The pericardium thickened by deposition of lymph to a ½ an inch, like sole leather, so completely inelastic as to stand out from the heart, in all directions. The portion of membrane investing the heart was thickened to the same extent, giving the organ an appearance of general hypertrophy. The right auricle also as thick and rigid as a piece of sole leather. The muscular structure of the ventricle had undergone a morbid transformation, looked like boiled, cow's udder.—Endocardium opake and slightly thickened, as were the valves. The left auricle equally rigid with the right. The openings into the auricles permanently patent. The mitral valve very much thickened, but not rigid. The muscular structure of the left ventricle hypertrophied. Semilunar valves thickened, as well as lining membrane of the aorta. Pericardium universally adherent to the right lung. See No. 819.

CASE OF ABSCESS IN THE LIVER SPONTANEOUSLY EVACUATED BY THE AIR PASSAGES AND BOWELS.

" Mr. J. C. S. was seized on the 6th of August, in Canton, with inflammatory symptoms, for which he was leeched on the 10th or 12th, and bled from the arm on the 14th or 15th, and had this treatment afterwards followed up by a succession of leeching and blistering, and the administration of calomel every night, until the severity of the symptoms gave way. The disease was so far got under before his leaving Canton, that he was considered out of danger by his medical attendants, and was recommended by them to go to Macao for the benefit of a purer atmosphere, where he arrived on the 1st of September, labouring under a relapse of all his former symptoms, but of an aggravated and more strongly marked character. He complained of much acute tenderness over the whole region of the liver; so much so, as to be scarcely able to bear any degree of pressure of the hand upon any part of it. An attempt even to take a deep inspiration caused very severe pain in the right side. His respiration was short, quick, and attended with cough; tongue coated, mouth parched; quick and sharp pulse: anxiety of countenance, and great general prostration; symptoms clearly indicating that the inflammatory process had exceeded *the bounds* which admit of a termination of active disease by *resolution*.

" The application of leeches to the seat of pain, which was had recourse to *repeatedly*, and carried as far each time as his reduced state would admit of, afforded only temporary relief. His bowels were carefully attended to and kept open by means of emollient clysters, with occasional small doses of calomel, and rhubarb and castor-oil. Counter-irritation by means of blisters and the tartar emetic ointment was kept up;—the nitro-muriatic bath was tried, and persevered in for some time; notwithstanding all which, no decided benefit was produced.

" The above treatment was pursued until the 13th, when a sudden change for the better, in the character of the symptoms, took place. He felt himself all at once relieved, and was sensible of something having given way within him. On examining his motions next day, a very considerable quantity of purulent matter was discerned in them, and in those he passed for several days after, which sufficiently warranted the opinion that had been held, of an abscess having formed in the liver. For ten or twelve days after this he improved considerably, when another return of the symptoms took place. The same remedies were employed as before, together with anodyne fomentations, with the same want of success; he got daily worse; and serious apprehensions regarding his recovery were entertained,—when, on the 4th of October, he experienced another sudden change for the better. But this abscess being higher situated in the organ than the former one, burst into the *thorax* instead of the *colon*, and the matter was discharged by expectoration. Ever since he has continued to get better; and nothing further was required than a careful attention to the state of the bowels,—

keeping them open by mild aperients and emollient clysters,—improving the strength generally by demulcent tonics and a strictly regulated diet,—and allaying nervous irritability and procuring sleep by means of night-draughts containing the acetate of morphia.

A few days ago he felt some uneasiness in the right side: the cupping glasses were had recourse to, but as he could not endure them, leeches were applied in their stead, and with a very good effect. He is now recovering rapidly."

(Signed) T. B. COLLEDGE."*

"*Macao, 22nd Nov.*, 1836."

CASE OF BILIARY CONCRETION. ILLUSTRATING NO. 193.

By Dr. C. Stewart.

A woman of middle age, had been subject to quotidian intermittent fever, for a long time, before she applied to Dr. Stewart for advice. The liver and spleen were then both enlarged ; but she never complained of any of the symptoms usually ascribed to gall stones, except on one occasion, and then she had a sudden and violent attack of excruciating pain in the right side, attended with vomiting: relief was then obtained by the use of fomentations, and anti-spasmodics, and her health was somewhat improved by the use of quinine, with other appropriate medicines. She afterwards went to reside near Moorshedabad, and only returned to the neighbourhood of Dr. S. a few days before her death ; having a cough, dyspnœa, and general anasarca, with all the symptoms of entire failure of constitutional power ; she died in a few days, and on dissection much serous fluid was found in both sides of the chest, as well as in the pericardium. There was also a large collection of serum in the cavity of the abdomen. The liver and spleen were both greatly enlarged, the former much indurated : the gall bladder felt as if ossified, but on being cut open, the hardness was found to depend on a large biliary concretion, which was forwarded for the Medical Society's Museum. The concretion is of an oval shape, and measures, rather more than three inches and a quarter in circumference, in its longest direction ; since becoming dry, it is of very low specific gravity ; the colour externally of a dark mahogany brown ; with numerous small brilliant acicular crystals adherent to its exterior. On dividing this specimen through the centre, it was found to be of a waxy consistence, and not quite so friable as spermaceti ; the interior structure is striated, and its color becomes much lighter towards the centre ; it is a very beautiful preparation.*

CASE OF HEPATIC ABSCESS, EXPLORED AND PUNCTURED.
ILLUSTRATING. NO. 805.

From Dr. Maclean; with clinical remarks by Dr. Murray.†

February 8th, 1840. "Private John Gorman, H. M.'s 55th Regiment, aged 33, was admitted into the General Hospital under Dr. Mortimer with fever, cough, difficulty of breathing, mucous expectoration, and *daily rigors* at noon. He had been ill 4 days previous to admission, and ascribed the cause of his illness to cold, caught while on guard at night.

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* From the Quarterly Journal of the Medical and Physical Society, of Calcutta No. 2, page 157.

Transaction of the Medical and Physical Society of Calcutta, vol. i. Appendix No. II

† Late Inspector General of H. M. Hospitals.

"He did not complain particularly of uneasiness in the Hepatic region or epigastrium till the *21st February,* when a general fulness in the latter was observable. *On the 22d* he felt very weak. *On the 25th* the fulness in the epigastrium and oppression of breathing were increased, and his countenance became anxious; Pulse 84. *On the 27th,* it is reported that he had again chills for several nights, followed by free perspiration; Pulse 100. *On the 29th* he was transferred to the 54th Hospital under Dr. Everard. *On the 2d March* his liver was explored and punctured by Dr. Murray, who made the following memorandum at the time on the case.

"Being informed by Dr. Everard that he had got a patient in a dangerous state transferred to his Hospital, suffering from pectoral symptoms with obscure manifestations of suppuration in the liver I went to consult with him on the case.

"I found the liver extending nearly 3 inches into the epigastrium towards the umbilicus, tender to the touch, but not so much so as to preclude examination. The right rectus muscle was more tense than the left, or rather it became so on attempting to examine the tumor, as if to screen it from pressure, which Mr. Twining gives as a characteristic symptom of central abscess of the liver. The patient had many shivering fits about 3 weeks ago, and now has profuse cold perspirations at night (*Hectic Fever,*) with a considerable puriform deposit in the urine; but there is no fluctuation perceptible in the enlarged viscus. *Decubitus* on the back or left side is extremely oppressive. He has a frequent tickling cough, and great difficulty of breathing, with sense of weight in the hepatic region; his legs and body are œdematous; he has no appetite; great thirst; pulse 120 and intermittent; prostration of strength great.

"Finding him suffering so much, and evidently in a very dangerous way; and considering the general as well as local symptoms decidedly indicative of existing suppuration, I pushed a trocar into the liver where it protruded into the epigastrium—but only a little blood flowed on withdrawing the stilette. Not satisfied with this exploration, I pushed the new exploratory instrument into the liver, behind the middle of the side, between the 8th and 9th ribs, when, to our satisfaction, pus flowed; not however through the tube of the instrument, but by the side of it—apparently from my having gone beyond the abscess.

"I then withdrew the explorer, and introduced a large sized flat trocar by which 8 or 9 ounces of thick curdy pus were evacuated. When the evacuation was nearly completed, a gurgling of air took place through the canula, apparently from the action of the diaphragm, and a cork was then fitted to the canula (which was retained *in situ*) with directions to take it out at mid-day and in the evening, to allow accumulated matter to escape. A bit of sticking plaster was applied over the orifice of the first puncture in the epigastrium.

"After this the patient's breathing, and his *decubitus* on the back were somewhat relieved; and he said he felt altogether better. He complained of thirst, for which he was ordered small quantities of lemonade, and the following mixture.

℞ Liq. Am. Acet. ℥v.,
Spt. Æther Nitr. ʒij.
Syrup Simpl. ℥ij.
Aquæ ℥xxx. M.—
℥iii., 3 tiâ q. q. horâ.

Acet. Morph. at bed time.
A large poultice over Hepatic region and side.
Spoon diet; congee.

"Although his bowels were free, he was ordered a purging enema in the evening.

March 3d Mane.
Continue mistura.

"Says he did not sleep, and that he has not slept for many nights, but that he feels better this morning. The canula was withdrawn last night, and a tent of lint introduced instead. A little thick matter is discharged at each dressing. *The urine is now clear.* Pulse 100; skin warm and moist; bowels open; thirst less.

"To have an egg and one pint of beer, with spoon diet.

Vespere.
Rept. Enema. R. tinct. Opi. ʒi., aq. menth. pip. ℥ss. h. s. s.

"Slept a good deal during the day; breathing easier; Has no uneasiness in the site of the puncture in epigastrium, pulse 100; skin less clammy.

4th.
Contin. omnia.

"Rested well last night, and feels better. Bowels freely opened by the Enema. The discharge from the side this morning is ichorous; Pulse 100; skin moist.

5th Mane.

"Did not rest so well. No discharge from the side this morning, the urine again deposits a thick yellow sediment.

Vespere.
The side to be well fomented, and afterwards poulticed.
Repr. Enema R Tinct. Opii., Tinct. Hyosciamiaā M. 50.
Aq. Puræ ʒi h. s.

"No discharge; great depression and anxiety; Pulse 120, and rather full. Skin clammy. Dr. Murray made another exploratory puncture into the liver on the right side of the epigastrium, without finding pus; but a quantity of serous fluid was evacuated from the cavity of the abdomen, on withdrawing the canula out of the liver.

6th.
To have Congee, Coffee; Chicken broth; 1 pint of Claret(supplied by Dr. Murray) Oranges.
Rept. Haust h. s.

"Slept towards morning; perspires much; urine deposits a puriform sediment. There is a little discharge from the side, partly of thin sanies and partly flaky; much oppression of breathing; thirst great; feels easiest when sitting up; P. 106.

7th. Mane.
Sumat Haust. Purgans.

"Was in a cold Sweat all night; no discharge from the side; Pulse 112, Bowels not open.

Vespere.
Rept. Haust. Opiat. h. s.

"Considerable discharge from the side, of better appearance; urine again clear; bowels opened; feels better.

8th.
Continue Omnia.

"Discharge copious; urine clear; feels better; pulse 110.

9th. and 10th.
Continue diet and wine as before.

"Discharge continues; breathing better; feels very weak; urine thick and scanty; P. 100. He gets jelly daily from the Mess; which he likes.

11th.
Continue Omnia.

"He was transferred to my care, on the arrival of the Left Wing 55th Regiment; but immediately under Dr. Murray's superintendance.

12th. Mane.
Continue Omnia.

"The edges of the puncture in the side look inflamed and sloughy; and there is a small sloughy bed-sore on the right hip, from lying always on that side. The punctures in the epigastrium are quite healed. P. 112.

Vespere. "He became very chilly at 5 P. M., and his skin is now cold and clammy; Dyspnœa very great; abdomen distended. The discharge from the side is a thin fœtid sanies, P. 116. To have 2 measures of Port wine mulled.

13th. "Died at 7 A. M.

"*Dissection, 7 hours after Death.*

"Previously to opening the body, the Exploratory Instrument was introduced into the liver, near the end of the 11 (*floating*) rib, when thin yellow pus issued freely through its canal, shewing it had entered an abscess.

"Œdematous swelling of the hands, feet and ancles, with emaciation of the arms, legs and thighs, abdominal enlargement, distention of the right hypochondrium, bulging of the ribs of the right side, and an ulcerative sloughy state of the wound, constituted the external appearances.

"On dividing and turning back the abdominal parietes, it was found that firm adhesion, of recent formation, had taken place between it and the liver where the two punctures were made in the epigastric region; and attentive examination could not detect any mark of inflammation in the substance of the gland around the points punctured: the cicatrization of it was perfect. The right lobe of the liver extended (*was apparently pushed down*) to within an inch of the crest of the ilium and umbilicus; and the left lobe nearly reached to the spleen.

"It was found that the exploratory instrument which before dissection was pushed into the liver, had entered a large distinct abscess situated in the right side of the concave surface of the gland, which had very narrowly escaped being penetrated in the exploration made on the 5th instant. Its area was considerably larger than a man's fist, and it contained upwards of a pint and a half of thick yellow greenish pus.

"Immediately above this abscess was the empty contracted sac of the one opened and evacuated on the 2d March: the inner surface of it had a dark gangrenous appearance, which extended throughout the course of the wound

"At the centre of the upper convex part of the liver, was a third distinct abscess, *the largest of all*, containing nearly 3 pints of matter, which seemed not only the chief cause of the projection of the organ beyond the ribs, by its pushing it downwards; but also of the projection of the diaphragm into the right cavity of the chest: it pushed the diaphragm as high up as the 4th rib. The upper part of the walls of this abscess adhered extensively to the diaphragm; as did those of the lowest abscess to the cellular substance and other parts above the right kidney.

"There was no adhesion between the Liver and the Colon or Stomach.

"The anterior part of the right lobe (where the two punctures in the epigastrium were made) and the left lobe were somewhat enlarged, but their substance did not appear otherwise unhealthy.

"The gall bladder was contracted, and of a pale colour.

"The right cavity of the thorax was full of darkish serum,—it contained at least 5 pints; and the lung of that side was collapsed, compressed into a surprisingly small size, non-crepitant, and perfectly unserviceable.

"The left Lung, Heart, and large Blood Vessels presented no change from health.

" From the state of the Liver and contents of the left cavity of the thorax, there was no doubt as to the cause of death. The event was probably neither accelerated nor retarded by the punctures made in the former: it was judged that the patient was past recovery by any human means at the time they were made.

" W. C. MACLEAN, M. D. *Asst. Surg.* H. C. S.

" *Clinical Remarks by Dr. Murray.*

" We have derived much information of an interesting and instructive kind from this unfortunate but important case.

" Three days subsequently to making the punctures on the 2nd instant, the purulent discharge ceased, when great increase of dyspnœa, anxiety, and restlessness supervened ; and the liver was felt projecting still farther beyond the ribs all across the side.

" The Hectic Fever, weight in the hepatic region, and sense of suffocation on *decubitus* on the back and left side continued ; the latter symptom was much more prominent than I ever witnessed in any case of simple hepatic disease ; and was owing, as appeared on dissection, to the hydrothorax. The case was altogether distressing and alarming, and the prognosis most unfavourable.

" In the hope of being able to reach another abscess, or to re-open the one I had before penetrated in a more depending position, and thereby afford relief to the patient ; after making a preparatory puncture with a lancet through the integuments into the enlarged liver, about an inch and a half more to the right and lower than the first puncture (i. e. a little below the cartilaginous junction of the 9th to the 8th rib) ; I inserted a trocar in the direction of the centre of the diaphragm, but without coming to any matter.

" The operation did not appear to give much pain, (*the preparatory puncture with the Lancet rendered the entrance of the Trocar easy,*) and it was not followed by any bad effects ; but we did not deem it advisable to institute any further exploration at this time.

" Very little blood came from the liver, but on withdrawing the canula, a quantity of serous (*ascitic*) fluid escaped through it from the cavity of the peritoneum, indicating that no adhesion then existed between the liver and abdominal parietes at that part.

" The details of the case, and post mortem examination, shew ; 1st, that as no bad consequences resulted from making the punctures, danger need not be apprehended from pushing a trocar into the parenchymatous substance of an enlarged liver ; 2dly, that the punctures were the means of causing adhesion between the liver and abdominal parietes ; 3dly, that the man's life, if it was not eased and prolonged, at any rate was not shortened by the operations ; and, *lastly*, that even had I succeeded on the 2d instant in reaching all the abscesses to evacuate them, so great was the *quantum* of disease in the liver and right lung, that there would have been no chance of the patients recovery.

" It has been customary for Medical Officers to mark with a sort of *exultance* the unexpected discovery of an abscess in the liver after death, as if thereby shewing that death must have been the inevitable result of any treatment in such cases ! but, hereafter, I shall rather be inclined, *in general*, to consider such a discovery as a reflexion upon their discrimination and practice.

" There is at present too great reluctance on the part of most practitioners to explore enlarged livers, even when there are strong characteristic symptoms of existing abscess, from apprehension of danger in the operation. A *deterring* story is told here of a patient once dying from hæmorrhage in consequence of a trocar having been pushed into his liver ; but I can call to mind 17 cases within the last few years, wherein I performed this operation without any bad consequences ; by which 6 of the patients were recovered, and are alive to this day I believe.

" I consider, that, *with a good anatomical and pathological knowledge of the region in our mind's eye*, to enable us to avoid the large Hepatic vessels, the gall-bladder*, the Colon, and the Stomach ; there is abundance of evidence to authorize us, nay that it is our bounden duty to explore the Liver, without hesitation or delay, in most cases where pathognomonic symptoms of abscess in it exist, and the disease is interfering seriously and prejudiciously with the functions of the organ, and with the general health of the patient.

" By early accurate diagnosis, and active constitutional and local (*preventive*) treatment, a favourable termination may very often be happily brought about in hepatic diseases without the necessity of operative procedure ; but when abscess has once formed, we know how little advantage is to be expected from persisting in the use of mercury or any other medicine : therefore, let the question be fairly put. Does not the trocar, with a well regulated diet, hold out a better prospect of success ?

" The case under consideration was at first under the care of my friend Dr. Mortimer, who I must mention was about to explore the liver when the man was transferred to the 54th Hospital, where the Doctor continued to take a warm interest in him to the last, and kindly conducted the *Autopsia.*

" After having seen this dissection, I would hereafter explore to a greater extent any analogous case ; and I am, moreover, of opinion, that all our punctures should be made from the abdominal cavity—entering the trocar or explorer under the edge of the cartilages of the 7th, 8th, or 9th ribs, as circumstances may indicate. We may often indeed get nearer to the abscess through one of the intercostal spaces ; *and I think primary exploration may sometimes be advantageously made in this situation by a very minute flat canular instrument ;* but. from not having seen any patient recover where the matter was evacuated in this direction (through the diaphragm) ; from finding that the action of the fibres of the diaphragm impedes the free discharge of the matter, somewhat like a valve, from observing that air sometimes enters the wound when made here ; and from considering that the opening is not so dependent through the walls of the thorax as when made through the abdominal parietes ; I beg to recommend the latter mode *in all cases ;* and I must also say that I would prefer a long flat trocar to any other instrument, as the stilette can be withdrawn occasionally during the operation to ascertain if any abscess has been penetrated ; and the canula can be left in *situ* afterwards, if thought desirable.

" When the abscess is central, or situated in the upper (convex) part of the Liver, it will require much confidence and boldness in the practitioner to operate effectually ; but what arduous operation does not ? The example of perseverance set us by Surgeon Wilkins of the 41st Regiment, (mentioned at p. 480, vol. i. of this Journal†,) where he introduced the long trocar for puncturing the bladder in order to reach the abscess, *by which means he cured his patient,* should not be lost sight of.

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* A tumid gall bladder projecting at the Epigastrium, may be distinguished from an abscess of the Liver, by a peculiar induration continuously surrounding the latter which is not present in the former, it being a soft elastic circumscribed tumor, the result of over distension from fluid in a natural cavity.

"It seems to me only necessary to draw the attention of Medical Officers to the general fatality of hepatic abscess and to excite reflection thereon, to carry conviction to their minds of the advantage of the practice I have been endeavouring to establish. I am by no means anxious, however, that my views should be hastily adopted, as nothing is more injurious than the reception of any proposition without scrupulous examination :—if it be false, this perpetuates error ; if true, it abridges its utility by leaving the principle insufficiently investigated and explained, and thus abridging its application.

"JOHN MURRAY, M. D.
" *Depy. Insp. Genl. H. Ms'. Hospitals.*"*

Rupture of the Liver. illustrating no. 189.

By G. Evans, Esq.

A Native woman dying under suspicious circumstances, a medico-legal investigation was made upon the body. Of her previous history, or facts connected with the case, little could be learnt ; the only external mark of violence seen upon the body was a contused and ecchymosed state of the integuments covering the right false ribs. The post-mortem dissection proved, that the unfortunate woman had received either a fall, a blow, or a kick, upon the right hypochondriac region, the force of which had ruptured the liver, which was in a very soft and abnormal condition, and from whence an immense effusion of blood had escaped into the cavity of the abdomen. The laceration in the liver so intimately corresponded with the situation of the external mark of violence, that no doubt could be entertained of its being the consequence of the injury and the cause of almost immediate death. In the gall bladder were found large sized calculi completely filling up its cavity, and the coats had firmly contracted on their contents, to the total exclusion of any further supplies of bile from the cystic duct, which was quite impervious throughout its whole extent. As might naturally be expected, the hepatic duct is larger in its calibre, and denser than usual. The uterus had hardly recovered from its parturient state, as is evinced by the openness of its structure, the enlarged size of the veins, the protruding form of the os tincæ, and the generally attenuated condition of the vagina. Two coloured pieces of glass are introduced into the Fallopian tubes, pointing out their course towards the ovaria, and in one of the latter may be seen the corpus luteum of the last impregnation. The supposed proofs of former conceptions are visible in both ovaria. See No. 331, *Uterus and appendages.*

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† Madras Quarterly Journal.

A STATISTICAL TABLE OF HEPATIC ABSCESSES. By W. GEDDES, ESQ., MADRAS.

No. in Table.	Site and size of Abscess.	State of the Intestines.	Affection of Intestines.	Whether vomiting.	Whether pain of shoulder.	What prominent symptoms ? fatal attack
1	...	...	...	...	...	No report of these cases in the Hospital. Journal
2	...	...	..	...	...	
3	Large, solitary, in right lobe, near the diaphragm,	Externally vascular,...	Evacuations unhealthy, ...	1	1	Pain occasional; fever with weak frequent pulse, and tendency to clammy sweats; vomiting; rapid sinking.
4	Numerous suppurating tubercles,	Much ulceration, and thickening over the large intestines, ...	Dysenteric, ...	Latterly,..	None, ..	No pain of liver; severe dysentery, with irregular exacerbations of fever, and great debility.
5	Large, solitary, and deep seated,	Healthy, ...	Occasionally unhealthy evacuations and diarrhœa, ...	Occasionally.	None, ..	Pain in side from the ninth day preceding death, then and previously attacks of hectic fever, with increasing debility.
6	Solitary, but not large, on the margin of right lobe, with adhesion to the colon,	Large intestines ulcerated from cœcum to rectum.	Dysenteric latterly,	None, ...	None, ..	Pain in right lumbar region—constitutional disorder with weak pulse, moist skin; increasing debility. &c.
7	Numerous small abscesses.	Colon, and cœcum ulcerated and thickened	Dysenteric, ...	None, ..	None, ...	No pain of liver; dysenteric symptoms, with increasing weakness.
8	One large abscess in centre of right lobe, and small one in left,	Head of colon beginning to ulcerate,	Stools unhealthy, with latterly a little blood,	Occasionally,	On coughing,	Pain of right hypochondre, and about navel, occasionally for the last 14 days, with accessions of fever, and great perspiration; jaundice on the fourth day before death.
9	Small and solitary, near the posterior part of the liver,	Healthy, ...	None, ..	Frequently	At admission,	Pain on admission, shooting up from scrobiculus cordis to right shoulder, soon leaving him; afterwards perspiration, and sudden sinking.
10	Large, and solitary in the outer and upper part of right lobe,	Slight contraction in the colon,	None, ...	None, ..	1	Pain more or less acute near the last false ribs, at times none, synochal fever, afterwards hectic; want of sleep, and great feeling of weakness.

	Large and solitary in the upper part of the right lobe,	Contraction of colon,	Inclined to constipation, ...	Latterly,	1	Pain rather constant in the site of abscess: hectic fever with evening exacerbations, and a small weak pulse; generally a cool-damp skin ; frequent vomiting, and a somewhat rapid sinking immediately before death.
12	Large and solitary, at the inferior margin of the right lobe,	Healthy, ...	Some latterly, with at times a little	None, ...	None, ...	At first vague pains about his breast—then for a long time only a great feeling of weakness: want of appetite, and occasional evening exacerbation of fever, and latterly pain in right lumbar region, with affection of the bowels.
13	Large, and solitary in the left lobe, bursting towards the concave surface, and the matter diffused in abdomen,	One or two round ulcers in the colon.	At first loose, afterwards irregular,	Frequent, especially latterly,	None, ...	At first diarrhœa, with some pyrexia, afterwards occasional pains in the site of disease ; evening and other exacerbations of fever, eventually with great sweating, and a swelling observed at the scrobiculus cordis, suddenly getting more diffused, with aggravations of symptoms.
14	Large and solitary, in the upper and outer part of the right lobe, bounded by the ribs,	Contraction near the sigmoid flexure of colon,	Generally loose, and stools either dysenteric or of a pale yellow hue,	Generally none,	Occasionally,	Occasional attacks of pain of side ; affection of bowels with hectic fever, under all varieties ; perspirations, and ultimately a gradual sinking.
15	Large and solitary, in the upper part of right lobe, communicating with the lungs,	Healthy, ...	Loose unhealthy evacuations with at times streaks of blood,	None, ...	At first severe, afterwards none,	Pain of side and shoulder ; disorder of bowels ; considerable hectic fever, with paroxysms of exacerbation ; eventually discharge of matter by cough, and gradual sinking,
16	Large and solitary, in the upper part of right lobe,	Large intestines ulcerated extensively,	Dysenteric, ...	Slightly,	1	Irregular dysenteric affection, with occasional pain in the side and shoulder, accompanied by exacerbations of hectic ; generally evening increase of fever ; frequent rigors with gradual emaciations and debility.
17	Numerous small abscesses in	Large intestines ulce	Generally, dysente-	Occasion-	None,	Sudden and irregular accessions of pain be-

A STATISTICAL TABLE OF HEPATIC ABSCESSES. BY W. GEDDES, ESQ., MADRAS.

No. Table	Site and size of Abscess.	State of the Intestines.	Affection of Intestines.	Whether vomiting,	Whether pain of shoulder.	What prominent symptoms on fatal attack.
	left lobe, one large extending to middle lobe,	rated throughout,	ric, particularly on admission and near death,	ally		low the scorbiculus cordis, with intervals of ease, and general amendment of symptoms, which, besides the pain, were hectic fever and affection of bowels; eventually, the latter was most prominent, with a diffused swelling over the stomach.
18	A few abscesses in both lobes particularly in upper part of the right,	Large intestines ulcerated throughout,	Dysenteric, ...	Nausea and occasional vomiting	None, ...	Irregular and occasional pains in side for a short period, with slight feverish tendency, want of appetite and debility; then severe dysenteric symptoms and hectic exacerbations.
19	Large and solitary, in the upper and outer surface of right lobe, bounded by the diaphragm,	Slightly diseased, ..	At first dysentery, with separation of gut, afterwards less affection,	Occasionally,	None, ...	At first dysentery, then occasional pain of side, in right lumbar region, with evening and other exacerbations of hectic; gradual emaciation and œdema; sweatings, &c.
20	Solitary, on the outer surface of the right lobe, and penetrating between the ribs to the skin,	Healthy,	Occasionally costive, and at times loose with blood,	Occasionally at commencement and near the termination,	1	Severe pain in the site of a swelling in right hypochondre, which was opened and matter discharged; irregular bowels; hectic paroxysms and gradual emaciation, with eventually convulsions, causing death.
21	Large and solitary, in the inferior margin of the right lobe, which extended to, and adhered to the colon,	One or two superficial ulcers in the colon, where liver adhered,	At first, simple diarrhœa, latterly dysentery,	Occasionally,	None, ..	Severe pain in the right lumbar region; affection of bowels; pyrexia with a frequent thready pulse; deafness, and rapidly increasing debility.

	Large and solitary, in the upper and posterior part of the right lobe,	Head of colon and rectum ulcerated and thickened,	Generally dysentery partially towards death, with great tenesmus,	Occasionally,	Severally,	Pain at first severe, in various parts of the right side; affection of bowels; rigors; hectic paroxysms and occasional sweatings, and eventually the affection of bowels being the chief disorder.
23	Numerous small abscesses, particularly in right lobe, and a large one between the two lobes,	Cœcum and head of colon with ulcers internally, and the same in the rectum.	Dysentery, ...	Occasionally.	None, ..	At first pain at the scrobiculus cordis and right hypochondre. with the bowel affection; latterly. chiefly the dysenteric disorder, with thirst. furred tongue, cool damp skin, gradual acceleration of pulse. and exhaustion.
24	Large and solitary. in the upper, and posterior part of the right lobe,	Healthy, ..	Slight irregularity,	Frequently,	None, ..	On admission, pain in site of right lobe of liver. afterwards chiefly anxiety and oppression at the scrobiculus cordis, with great perspiration, thirst. vague pains about the limbs, and restlessness, like a patient with Cholera.
25	Large and solitary. in the upper part of the right lobe, half an inch from the surface.	Some superficial ulcerations in the interior of the colon. with slight contraction.	Generally looseness, with more or less of dysenteric symptoms,	Occasionally.	None, ...	Generally no pain. only alluded to twice; long continued affection of bowels; slight yellowness of eyes; irregular hectic sweating, and gradual emaciation and debility.
26	Large and solitary. in the upper part of the left lobe,	Some large ulcers in the head of colon; thickening and contraction of arch and ulceration of rectum.	Looseness with some blood, chiefly in latter parts of the disease,	None, ..	None, ...	A steady pain for a long time, about two inches below the scrobiculus cordis; then continued weakness, sweatings, increase of frequency and smallness of pulse; an attack like Cholera, and very gradual exhaustion till his death.
27	Large and solitary, chiefly in the upper and outer part, but extending nearly over the whole right lobe.	Colon rather contracted; inner surface red and corrugated; no ulceration,	Looseness generally. with sometimes a little blood and and mucus,	Frequently,	Severely at times,	Pain in site of abscess; affection of bowels; occasional hectic exacerbations, and gradual emaciation with debility.
28	At period of dissection small. solitary. at the posterior and upper part of the right lobe, penetrating the right crus of the diaphragm and lungs,	Numerous ulcers, running transversely in the interior of the colon, which was not thickened, ...	Dysentery, ..	None.	At the commencement occasionally,	For two months, occasional pain in the right hypochondre, with rigors, perspirations, frequency of pulse. loss of appetite, want of sleep, and gradual emaciation; then severe dysenteric symptoms and for 10 days expectoration of purulent matter.*

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* Transactions of the Medical and Physical Society, vol. vi. p. 339.

OBSERVATIONS.

ON HEPATIC SUPPURATIONS.

The first reflection, suggested by an examination of these preparations, is the extreme frequency, and disastrous consequences, of suppurative affections of the liver, in this country. There is no form of structural disease, except dysentery, so common ; if I may judge from the number of specimens, sent to me for examination. In *No.* 1540, is seen a striking, and instructive example, of the ruinous destruction caused by rapid deposition of purulent matter, when there is no power in the constitution to limit the disease, by the effusion of coagulable lymph as in the Native ; or where as in No. 779 the inflammation is intense and allowed to proceed unchecked ; as is but too often the case, with unfortunate seamen, who give way to a most reckless intemperance, in Calcutta. This preparation confirms abundantly the observation of DR. COPLAND. "In some very acute abscesses, as in those which sometimes form in the liver of Europeans residing in India, after intense inflammation of the internal structure of the organ, no cyst, membrane, or even pellicle can be detected on the internal parietes of the abscess ; the whole surrounding structure being inflamed, softened, and sometimes portions of it hanging or floating in shreds in the midst of the purulent collection.*" It answers also the inquiry of the able author of the article "Liver," in theEncyclopœdia of Practical Medicine ; for in this preparation we see that the vessels traverse this vast cavity, from one side of the liver to the other, the vessels themselves being *quite permeable*.† In the encysted abscesses also, Nos. 809, 648, 779, &c. as in tuberculous and other cavities in the lungs, the vessels traverse the puriform collections, and are disposed of precisely in the same way. In some instances their cellular sheath seems to be strengthened by deposition of lymph, as in No. 648, (see also Nos. 1428. 1529. p. 254.*)

But the great practical inference, from examining these melancholy records is the importance of blood-letting ; and the absolute necessity for its being carried to a great extent, in order to affect adequately, the inflammatory condition of this, the largest and most vascular organ in the body. Since in this respect, it far exceeds the brain and lungs :—it has no air cells in its compact vascular structure ; neither is this interrupted by cerebral or any other peculiar organic matter. If the circulation of the liver in a frog, or a lizard, be examined under the microscope, the variety and complexity of the currents of blood appear at first sight more like the irregular action of *effervescence*, than the determinate courses which organized channels usually impart to the blood vesicles. By and bye we distinguish the interlobular, and *intra*-lobular currents, and the single files of corpuscles moving through the capillaries, but the intermediate walls are scarcely visible, their extreme tennity is doubtless most favorable to the action of such minute laboratories. Consequently, whenever we have been fortunate enough to try v. s. sufficiently early, upon simple cases, of acute hepatitis, we have been delighted to find the shrinking of the gland which takes place in a single night, after copious bleeding. According to M. PIORRY "this diminution of the hepatic organ varies from one to three inches from above downwards in twenty-four hours." This is always followed by great relief to the pain, and other symptoms. MR. MARTIN says, " however long the disease may have existed, *provided there be no symptoms indicative of suppuration,* general blood-letting—repeated as the symptoms may demand —and copious in relation to age, health, and length of residence in India, must be instantly had recourse to ; and the measure of depletion should be the sense of local and general relief, *with softening of the skin.*" DR. J. MURRAY also observes, " in the treatment, chief reliance is to be placed on v. s. *carried to syncope* at the very onset, and repeated at intervals not exceeding twelve hours, till the acute symptoms yield ; very rarely are more than three bleedings requisite: but in very dangerous cases, I have required to repeat it five times (*to syncope, or till the pain ceases*) before the disease was sufficiently subdued to render the patient safe. This rule I consider the only true criterion, in severe cases, by which we can be guided as to the quantity of blood the constitution will bear to lose, and the disease require to be taken. The effect of bleeding to sixty or fifty ounces at once, in the commencement, is most satisfactory in subduing alarmingly dangerous symptoms ; and I never saw any unfavourable consequences from it. One small bleeding afterwards—still to fainting or leeches, are in general found sufficient to remove any remaining acute morbid action.*"

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* Dict. of Pract. Medicine, vol. i. p 13. † Encyclopedia Pract. Med., vol. iii. p 46.

The contraction and puckering up of the cysts of abscesses is often detected after death, as in Nos. 184, 1358. Such instances " demonstrate in a very interesting manner, the removal of purulent collections from the liver by means of absorption, and the restoration of the structure of the organ to a nearly healthy state, excepting a diminution of its size, and this occurs more frequently than is generally supposed†."

Great differences of opinion exist, as to the manner in which this most desirable result is effected. One of the earliest observations, by VALSALVA on the subject, commended by MALPIGHI, and cited by MORGAGNI, shews that the hepatic duct may perform this office. But " whether this duct does or does not frequently transmit through its corroded branches blood and pus" remains to be proved ‡. Some consider the kidneys as the most direct mode of eliminating the pus from the system. And many able surgeons in this country, with great opportunities for observation, have attested the fact of purulent matter having been thus discharged. They have observed it mixed with the urinary secretion in great abundance. (See p. 208.) DR. MOUAT§, DR. J. MURRAY, and especially as being first to have recorded so important a fact.DR. CONWELL ; are especially entitled to attention upon this subject, although MULLER (at p. 296 of his Physiology, translated by BALY) declares his opinion, that, "*it is impossible for pus to be separated from the blood by secretion in the kidneys,*" for, says he, " the proximate principle of pus may be separated in this way, *but the globules of pus cannot* ; for no kind of globules can permeate the walls of the capillary vessels." Notwithstanding however this high authority.—the pathological fact, which is of great value, appears to be well authenticated. I may add also, in confirmation, that the appearance of pus in the kidney is frequently observed in cholera.

But DR. MOUAT does not limit himself to the kidneys alone. He infers that pus is passed in cases of hepatic abscess, both by urine, stool and also expectoration " without direct ulcerative communication ; being eliminated with the excretions of the kidneys, intestines and lungs." This, if it were not confirmed, by the statistical evidence of the tables which DR. MOUAT has given, would be a natural and philosophical inference; since nothing is more certain, than that the matter contained in large abscesses, elsewhere located, is frequently wholly absorbed. The breath and perspiration giving us an evidence of its presence in the system, which has long been recognized.

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* DR. J. MURRAY, Madras Journal, vol. i. p 78. Also see p. 166, and 177.

† See ANNESLY's great work, plate XIV. and XV. ‡ Morgagni, vol. ii. p. 189.

§ Madras Quarterly Journal. See tables vol. ii. p. 18, 20, 21, 22.

One example of this occurred in my hospital at **Alipore**, a girl about fourteen, after severe fever following upon suppressed purulent eruption, had great tenderness and pain in her right side, excessive rigidity of the abdominal muscles, followed by a circumscribed tumour as large as an orange in the *epigastrium*. *This again quite disappeared spontaneously.* An abscess formed near the elbow. This gave exit to about four ounces of laudable pus. Another large fluctuating swelling causing retraction of left leg, then occupied the left iliac fossa, this is now evacuated spontaneously; the girl is quite recovered.

The pathological exposition of this resorption which is given by **Dr. Conwell**, appeares to me, to be at least defective; and it is much to be regretted, that we have not the specific observations upon which it is founded. He says, " a series of observations since 1824 leads me to believe, that the vessels which traverse the area of hepatic abscesses become eroded, and that as the tumid state of that organ subsides, the hepatic veins, relieved from pressure, dilate their openings, leading from the surface of suppuration to the vena cava, and become pervious. The purulent fluid, in many cases passes gradually through the hepatic veins into the general circulation, and there is little additional disturbance of the circulatory system. If a larger quantity passes suddenly, by the erosion of a considerable vessel, it excites collapse, sinking, cold sweats, and faintness. If the vessels conducting the pus into the circulation are smaller, these symptoms are less marked, The pus then becomes excreted from the blood with the urine, and the disease is thus naturally cured.—When an hepatic case begins to improve by this process, the urine first assumes the appearance of decoction of cinchona, and is more or less opaque and turbid. In a few days it becomes quite opaque and white, as if blended with cream or pus; and it is frequently stained more or less by bile*."

One great difficulty strikes us in this exposition; we can understand that "erosion of a considerable vessel" may *let blood out*, as **VanSwieten** with reason apprehended, (when an abscess is ruptured,) and produce sinking, &c., but how let pus in? Admitting it, however, in its full extent;—how are those abscesses emptied, which have no vessels traversing them at all:—which are wholly encysted? yet these are the most numerous by far. And if they can be emptied by absorption, without such process of erosion of traversing vessels, so also can any other be. Besides, all the cicatrices, of recent abscesses which I have observed, shew indications of a cyst more or less thick, collapsed, folded, absorbed and consolidated; according to the period at which they may be examined, The beautiful figures in **Dr. Annesly's**, plates, bear out this remark†. It appears to me also, more consistent with good sense and sound judgment, to infer that all the changes of increase, decrease, and quality, in the pus of an abscess are dependent upon a membrane, the functions of which are ascertained, than to refer it to a process, which if it take place at all, can only do so, in a very limited number of instances. That acute observer, and able pathologist, **Dr. Copland**, to whose clear elucidation of disease I have so often referred, thus writes:‡ " The functions of the membrane lining abscesses are not confined to the containing and isolating the purulent matter, so as to prevent the contamination of the adjoining structures. Owing to the absorption and exhalation proceeding in its surface the contained fluid is continually renewed, its qualities are modified, and its decomposition prevented. It is not altogether removed from the influence of life, but participates in the vitality of the surrounding textures, as all fluids accumulated in organised parts do, though in a feeble and obscure degree ; M. DUPUYTREN remarks, that it is through the medium of this living envelope that the matter contained in abscesses is augmented and diminished in quantity ; is thickened, or rendered more fluid ; or is occasionally changed by substances absorbed or injected into the circulation. It is because the cysts of abscesses are connected by an intimate sympathy, with the chief centres of vitality, that the excitation of the more important viscera affects them in so marked a manner; and that remedies, judiciously applied to these viscera, often tend to promote the absorption of the matter they contain." Any practical remarks upon the *kind of remedies*, most successfully employed to act upon the viscera with this view, would only swell out these observations, to an extent incompatible with my present object.

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* Madras Quarterly Journal, vol. i. p. 335.

† Plate XV.

‡ Dict. Pract. Md. vol. i. p. 13.

There appear to be strong reasons for concluding "that abscesses in the liver may and do remain stationary in many cases for years." Such is my own opinion, and that of other surgeons in this country, both civil and military who have had much greater experience. Our worthy President of the Medical and Physical Society, MR. EGERTON, has repeatedly expressed himself to this effect; so also has DR. MURRAY, whom I have already quoted ; nor is such a supposition, in any wise inconsistent with what is observed of encysted abscesses located elsewhere, nor with the opinion of DR. COPLAND, of their contents participating in a modified vitality, dependent upon the adjacent structures.

IN NATIVES.

In Hepatic abscess men and women are frequently the subjects of hepatic suppuration, my Colleague DR. JACKSON, has had as many as three cases of liver abscesses punctured at one time in the ward of the Native Hospital, all recovered. I saw with him a few days ago another case, a Hindoo, which he has since punctured. He is averse to exploring, or to even puncturing these abscesses in Natives, until well pronounced externally. There are it appears from MAJOR TULLOCH's reports some part of our INDIAN possessions in which the Natives are remarkably exempt from these suppurations of the livor, especially does this appear to be the case with the INDIAN SEPOY. I cannot help thinking however that the want of autopsical data should induce us as to look doubtfully upon this reported exemption of the Sepoy.

As respects their causation in. "*The statistical reports of sickness mortality and invaliding by Major Tulloch, for Ceylon,*" *&c.* we find at page 16.

"In at least nine-tenths of the fatal cases of hepatitis the immediate cause of death was the formation of an abscess on the liver." "Though this class of diseases (of the liver) is not the most fatal, it is the most obstinate of any to which *Europeans* are subject in this Island, and is very apt to recur on the slightest excess or irregularity ; which causes the mortality from it to increase very rapidly with length of residence" (see table. "Among the Malays and Sepoys the mortality from hepatic affections amounts to a mere fraction, and no fatal case at all has occurred among the Cingalese, whilst the Negroes have lost by it 3-2-10 per thousand of the strength annually. In the Mauritius the mortality was shewn to have been higher among the Negroes than the whites, and even here it is only one half less, so that the natives of same tropical climates seen equally subject to their influence as those born in northern latitude. The exemption of the Sepoy from hepatic disease is still more strikingly manifested on his native continent where the mortality by it during the 12 years before referred to, did not exceed *one* in *every ten thousand of the force annually*," Of liver abscess coincident with dysentery, and *vice versa,* I have been favored with tables drawn up by DR. JACKSON, of 26 cases of dysentery treated in the European ward of the Medical College during the years 1843, 1844, in which 9 only had liver abscesses, another table for 1845 of 30 cases, shews that 5 only had abscesses, "8 had livers more or less diseased" (these tables will be given in the PATHOLOGY OF THE ALIMENTARY CANAL.)

Practically it is of great importance to know, with reference to puncturing, whether there be *one* or several abscesses. It is very satisfactory to see that out of the table which I have given by DR. GEDDES 21 out of 28 abscesses were *solitary.* The case by Mr. BEDBOROUGH p. 284* and the liver of the Native woman No. 1437 p 262* *with numerous small non-encysted abscesses* leads me to infer that they would all have ultimately broken into one cavity, as we see occur with vomicæ in the lungs. *There is* therefore *one reason* for delay where it can be otherwise safe. In the case referred to, the pus found in mesenteric glands favours the idea of its being taken up from the bowels. *Can the lacteals take up pus ?* lymphatics we know can absorb pus and the veins also, M. d. ARCET states that it is the "serosity only, the most poisonous portion, resulting from decomposition of pus that can pass by endosmose, globules cannot."*

It would appear that abscesses make their way from the liver in every possible direction. *Upwards* we see the preparations (p. 266*) Nos. 1444, 1532 have made their way into *the chest,* 555 into the *lungs,* 859 into the pericardium. *Downwards* into the *stomach and duodenum* Nos. 805, 1524 to the *colon,* 1535 :—*into the kidney* 1379 :—*into omentum* 1608:—into abdomen many. *Backwards* we have one 1533 into the *vena cava.* A girl about 16 at the Orphan School Hospital under care of MR. EGERTON had seven abscesses in the course of fever : one in the elbow, one in the arm, one in each leg, one in the thigh:—one large, in the liver, burst, by sloughing ; *opening backwards through the ribs of the back.* When the abdomen was pressed large quantities of matter came out behind. On opening the body the sac was found in a sloughing state.

The coincidence of endo carditis and arterities with—hepatic suppuration has been repeatedly noticed in my dissections. If M. d. ARCET be right as to the poisonous nature of the serosity of pus, it may be perhaps a cause of this appearance of inflammatory action upon the internal lining of the blood vessels so frequently seen in India. DR. CONWELL'S* admirable dissections amply illustrate this important truth, which should be borne in mind in judging of the condition as to health of tropical residents. The liver appears to be itself reacted upon by disease of the heart.

We learn also, from examining these instances of *diffused* abscesses, No. 779 and 1540, the danger of opening them artificially ; since the admission of air into the undefended, and disrupted tissues of the organ, can only be followed by sphacelus and death :—whilst it is to be regretted, that during life, there exists no satisfactory indication of the state of the abscess in this respect, whether it be encysted or not. In No. 805, which had been punctured, the caustic blisters applied, had probably assisted in the formation of those strong adhesions, which have taken place between the cyst, and the thoracic parietes. The point of puncture is also worthy of notice, in this instance immediately below the margin of the false ribs, at almost their highest point of insertion, near the ensiform cartilage ; but still sufficiently clear of the gall bladder.

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* Brit. Med. For. Rev. vol. xv. p. 134.

It would, however, have increased our obligation to Dr. Geddes, and have rendered this subject more complete, had his valuable table included the state of each hepatic abscess with reference to its being *encysted or not.* With the exception of the abscesses which I have described,* this very important element in such observations, is omitted in all the cases which I have adduced. I have therefore been led to dwell upon it now, with a view of calling the attention of the profession in India, to the practical bearing it must have, as respects the success which will attend the puncturing of abscesses. Hippocrates, two thousand years ago, had observed this distinction; and in the following words has recorded his opinion, as to its influence upon the operation :—"Those who have an opening made by caustic or cautery from an abscess in the liver, *recover* if the discharged matter be laudable and pure and white, *for in these cases the matter is included in a cyst.*" "Qui suppurato hepati *uruntur* si pus purum et album fluat evadunt; in tunica enim his pus inest." (1 Aphor. xlv. &c.) To investigate, therefore, the ratio in which cases of diffused abscess may be expected to occur, and to determine, if it be possible, the circumstances under which they do occur, and the pathognomic signs by which they may be known, are objects deserving of most patient, and accurate research.

I have received through the Medical Board an interesting case which illustrates these remarks, since the first sheets upon this subject went to the press: and am heartily glad of any thing that may render it more complete, even if it be somewhat out of place.† I have also extracted from that most valuable record of Indian medical practice, "The Madras Quarterly Journal," some other cases which confirm the just view of the late Inspector General (given at p. 101) as to the benefit which results, not only from early puncture, but from *the very operation of exploring,* even if there be no pus and nothing but blood evacuated. Whilst the zeal, ability and success, with which this improvement in the treatment of hepatic abscess, has been carried out by the surgeons of the Madras Army, will free other operators from apprehension of dangerous hemorrhage, and induce them freely and fairly to try an improvement, the most important in the treatment of hepatic abscess, that has been suggested since the days of Hippocrates.

It may serve to impress this fact, if we preface these additional cases, with a reference to the practice of the Greeks, Arâbs and Latins, and their followers in modern Europe. This will shew, that although the necessity of opening hepatic abscesses, as early as their existence can be discovered, has been very generally acknowledged, yet the various modes of doing this, have all had reference to a danger of hemorrhage, now proved to be almost chimerical. A dread that we cannot doubt has led to the loss of many sufferers, who might have been saved by the exercise of a more just and rational practice. Again, opening the abscess at once, by direct puncture, is much less painful, the pain of much shorter duration, than either the caustic, which seems to have come into use, with the timid practice of the barber-surgeons, during the middle ages;—the potential cautery, which claims a much higher antiquity:—or that combination of knife and cautery, which was recommended by Aretœus, and adopted by Baron Larrey in Egypt. Whilst it will appear that effusion into the peritoneum is just as likely to occur when caustic is used, as when it is not.

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* At page 89 of Dr. Jackson's case; do. do. 66 *No.* 753, 805-809, and 779, &c.

† Case II. page 120.

To begin with Hippocrates, after speaking of vomicæ in the lungs, their terminations and dangers, he adds—" abscesses are formed in the side both from the spleen and liver in the same manner as they are in the lungs."* His description of it is very characteristic. It is this :—" When an abscess forms in the side, it is attended with hard cough, pain and fever, and a sense of weight ; acute pain always felt in the same place, urgent thirst, aversion from hot drinks, whilst the patient can only lie upon the sound side ; when he lies down he feels a weight like a stone in the side, which continues to swell and inflame, accompanied by edema of the feet,—*this* must be either *burnt or cut*."† He then gives directions for the dressing from day to day, until all the pus be evacuated. The mode of detecting empyema by succussion, and auscultation ; the mode of operating for it ;—the instruments to be chosen, the order of using them, the guard to the knife, the dressing, the injecting, the use of a tent, the times of removal, and deductions from the state of the pus, are admirably given at page 165 (suppuratus ex peripneumonia). Burning appears to have been the most common practice, as we learn from such passages as these—" quibus hepatis *inusto*," the passage quoted above, and many others.

Aretæus (who flourished A. D. 81, according to Sprengel‡ or fifty years before Galen) appears to have been the next Greek writer whose opinions and practice have been most influential in Europe. He says—" If it be considered necessary to resort to section (of the abscess), then, having received a heated *iron—ustorium*, direct from the fire, thrust it on, into the purulent collection ; for in this way you will find it both burn and cut."§

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* " Porrò in latere fiunt tubercula, et à pituita et bile, eadem ratione qua in pulmone." (Hippocrates, Lib. 1. De Morbis, p. 150.)—Leyden 1564.

† Idem. *Lateris tuberculum* (Lib. ii. De Morbis, p. 169) We see in the " Castelli Lexicon," Phyma φυμα Lat. tuberculum, generalitur dicitur *omnis tumor p. n. erumpens, comprehendit igitur abscessus.*

‡ Table Chronologique, Tom. ii. p. 574. of Sprengel's work.—Translated at Paris 1810.

§ Medicæ Artis principes, H. Stephani 1567.—Lib. i. p. 32.
Aretæi de sig. et cau. diut. morb. lib. i. cap. 13—" Igitur si aliquando necessariò ad sectionem venire cogeris, ustorium ferramentum candens perspicuúmque ab igne accipito, et usque ad puris locum intrudito, idem enim tibi et secat et comburit."

I have before mentioned, that this very practice was successfully applied in the treatment of hepatic abscess by Baron Larrey in Egypt, and it still exists among natives in India. The Baron probably found it also in use among the Arabs, since he does not mention having derived it from Aretæus. The case is curious and is as follows.

BARON LARREY'S CASE OF HEPATIC ABSCESS OPENED BY INCANDESCENT KNIFE.

Un sergent de la 22^{me} demibrigade d'infanterie légère étant entré à l'hôpital de la ferme d'Ibrahim-Bey, au Caire, présentait tous les symptômes d'un hepatitis : douleur fixe dans l'hypocondre, sécheresse de la peau, maigreur générale, fièvre, insomnie, tension des parois abdominales, constipation et évacuation d'urine de couleur orangée. Le sujet avait été affaibli par l'usage des émetiques et des purgatifs. La suppuration se forma promptement, malgré les moyens que j'employai pour l'empêcher, et une tumeur fluctuante se manifesta au-dessous du cartilage de la dernière vraie côte, prés du muscle droit.

Après avoir mis en usage, pendant deux jours, les émolliens appliqués à l'extérieur et les boissons adoucissantes prises intérieurement, je procédai à l'ouverture de l'abcès. Je coupai les tégumens et le tissu cellulaire par une incision oblique qui s'étendait de l'attache du muscle droit au cartilage de la côte, au bas de la tumeur en dehors. Cette première incision ayant mis à découvert le muscle grand oblique, je le coupai également avec les muscles subjacens, parallèlement à ses fibres, et je parvins ainsi à decouvrir la

Corn. Celsus (who flourished A. D. 3) is the next writer who appears to have introduced some modification.—"Abscess in the liver (he says) is to be treated like other internal suppurations. Some open it with a scalpel, *and cauterize the vomica*"—(" Quidam etiam contra id scalpello aperiunt ipsam vomicam adurunt.")—H. Stephani. Med. Art Princ. Corn. Celsus.

Archigenes (who flourished A. D. 97,) has given a full account of various applications to be employed, with a view of maturating the abscess ; and causing it to burst as speedily as possible. He enumerates the various modes by which the pus may be carried off; by the mouth ; by the bowels, and by the urine. He says that the safest is its evacuation through the intestine, after adhesions have taken place to the peritoneum. But, he adds, " when the tumour points outwards, it is necessary to open it, and evacuate the pus, by an oblique incision above the flank."*

Galen (who died A. D. 200) seems to have directed all his efforts, to induce evacuation of the abscess by some of the natural passages, or by resolution. He introduced the *digesting process*, which was afterward so generally practised in Europe ; and condemns opening abscesses *too early*.†

The practice of Ætius (who lived A. D. 543) was doubtless formed upon the excellent fragment which (Archigenes already quoted) has been preserved only, in his own writings.

Avicenna (who was born A. D. 978) seems to have followed Galen implicitly. But I find in his work, that rough motion, as horse exercise, &c., is recommended, with a view of rupturing the abscess. This practice existed in Europe so late as the sixteenth century, as we find from the allusions to it in Morgagni.‡

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tumeur, qu'on aurait d'abord prise pour un anévrisme, à raison des battemens qu'elle donna pendant l'opération. Ces battemens m'arrêtèrent un moment ; mais lorsqu'ils furent apaisés et que j'eus reconnu leur caractère, différent de celui des battemens de l'anévrisme, je me décidai à plonger un couteau incandescent dans l'abcès. L'ouverture qui en résulta fut suivie de la sortie d'une très-grande quantité de matières couleur lie de vin, mêlées de flocons blanchâtres purulens ; j'agrandis enfin cette ouverture haut et bas, et, après avoir porté le doigt dans le foyer de la malade, je trouvai une erosion superficielle assez étendue dans le lobe moyen du foie, près du ligament suspenseur.

Dès ce moment le malade se trouva soulagé ; la suppuration fut, les premiers jours, très-abondante et de la même nature ; ensuite sa quantité diminua graduellement et changea de de couleur en très-peu de temps. Les parois du foyer purulent se détergèrent ; des bourgeons charnus se développèrent et nous parurent remplir graduellement le vide qu'avait laissé le fluide évacué, et la plaie, après être restée fistuleuse pendant une quarantaine de jours finit par se cicatriser.

BARON LARREY, *Clinique Chirurgicale, tom.* ii. *p.* 448-9.

* " Cæterum in his quibus tumour foras prominet, sectionem obliquam super inguen infligere aportet." 1 Ætii Tetrabibli tertio sermoii, Basil Edit. 1542, p. 565.

† " Non expedit incidere protinus ; sed *digestionem moliri* medicamentis ad id valentibus," &c. Edit. Argentorati 1504, Gal. Method. Medendi, Lib. xiii.

‡ " My preceptor Albertini pressed it very earnestly upon practitioners, not to suffer a patient to be moved when there were symptoms of an abscess already formed in the liver ; *not because he was ignorant that motion has been prescribed, at this time, by authors*, who are, in other respects excellent, which I also read has succeeded happily sometimes in our memory ; but because he supposed, that without using motion, it would probably happen that the pus of an abscess so ruptured, without injuring the membrane of the liver, might be carried down to the intestines, through the branches of the biliary duct ; and because from a contrary practice, he foresaw how easily the external membrane of the liver might be ruptured, so that the pus should be poured out into the cavity of the abdomen, and kill the patient instantly, by bringing on a syncopé.

Hali Abbas, contemporary with Avicenna, as well as Albucasis, who was born at, or near, Cordova in Spain, A. D. 1122, give precise directions for opening hepatic abscess by *the cautery-knife.** To these writings, through the medium of Latin translations, Europe was chiefly indebted, during the dark ages, for the little good surgery then known.

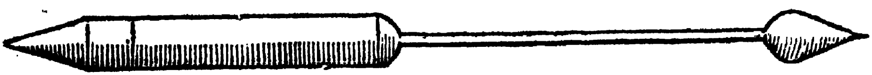
We are indebted to the eminent Leyden Professor of Medicine, C. Pruys Van der Hoeven, for rescuing from the depths of the "sepulchretum" a most interesting record of the practice of the barber-surgeons in 1570.† It brings us much nearer to our own times. This case has the rare merit also, of having been commended for its accuracy even by the great Morgagni, who says—" There are extant here in the sepulchretum, histories of abscesses in the liver to the number of twenty. But there is not one of them all in which a greater care in the observation of the symptoms is not to be desired, *if you except that of the Man of Noremberg which is described by Coiterus.*"‡

" For this he remembered to have happened at Bologna, at the time he was a young man, when an excellent physician, and, at the same time, an eminent surgeon, following the practice of those authors, had prescribed motion to a virgin who had a suppuration in the liver; by which means the pus being pour'd out into the abdominal cavity, the patient died soon after, in the arms of the women by whom she was supported."

* HALI ABBAS, practice, Lib. nonus Fol. 167 cap. 75 de Epate in quo emissio est coquendo. His method is much better given in Albucasis, who appears especially to have followed him.

Sec. xxviii. *De tumore jecoris cauterio perforando.—Channing's Albucasis, Oxonii* 1778, *p.* 61, *vol.* i.

" Quando acciderit in jecore tumor, et scire cupias si is tumor fuerit in carne jecoris, vel in tunica ejus: equidem si fuerit in carne jecoris, invenies infirmum gravitatis sensu, et dolore minime acuto laborantem. Quodsi sit in tunica jecoris, cum dolore erit acuitas fortis (*dolor erit acutior valde:*) Porro, si videris, quod curatio ejus fatigavit medicos, oportet ut infirmus decumbat in posticam cervicis partem (*resupinus*); tum signabi locum Apostematis cum atramente; dein calefac cauterium specillo simile, et hæc est ejus forma;



et uras cum illo una ustione, donec cutis tota usta sit, et cum cauterio preveneris usque ad membranam adeo ut exire facias omnem materiem purulentam. Postea curabis curatione abscessuum donec sanetur."

† CASE OF ABSCESS IN THE LIVER TREATED BY CAUSTIC, DEATH FROM EXTRAVASATION INTO THE PERITONEUM.

"En casum, priorem evacuandi modum illustrantem. Anno 1570 Norimbergensis quidamnatus annos 42, totus cholericus, levi tussi correptus, de molesto quopiam hypochondrii vel dextri dolore, edendi appetitus amissione, totius corporis languore, aestu affatim et plerumque faciem manuumque palmas pedumque post cibum plantas invadente, ac oris ariditate conqueri coepit. Vi morbi crescente viribus decrescentibus, corpore extenuato, totius anni spatio post fuit coactus decumbere ac medicorum opem implorare. Usus est multis medicis, meque tandem accersiri jussit. Invenimus intra caetera febrim erraticam quandam atque tumorem durum tensivumque in hepatis regione, ad medium ventris et umbilicum usque protensum, febris minime erat intensa et periodica, sed hecticae similis, quae incerto tempore subinde per totum corpus diffundebat aestum solito majorem, qui interdum prius, interdum tardius remisit. Magis potus, quam cibi desiderio movebatur, ut fere semper hominibus affectibus, vel etiam hepatis magnis obstructionibus, aut scirrhis, quibus calida temperies accedit, usu venire solet. Tumor erat durus cum magna tensione, vehementi punctione doloreque ulceroso conjunctus,

‡ *Morgagni, Epist.* xxxvi. n. 5.

The excellent commentaries of Van-Swieten, upon the aphorisms of the illustrious Boerhaave, bring us down to the foundation of modern surgery in England. At p. 208, vol. ix. of the Edinburgh translation, (1776,) of Van-Swieten we read :

"The tumour, of the liver properly held or secured, is to be opened either by seton, actual cautery, caustics, or lancet ; and the wound made is to be afterwards gently corroded or enlarged to a greater depth, by suppuratives and escharotics, until it extends to the vomica or abscess.

"In this case a way must be opened as soon as possible for the exit of the matter collected in the liver ; for Aretæus well observes, 'If the abscess points outward, to neglect opening it by incision is bad practice ; for if it be thus left to itself, the liver is eat up by the matter, and there is nothing that can hinder it from being mortal.'* But since the liver appears so bloody a viscus, that the ancients made it the origin of all the veins, and the fountain or reservoir of the blood itself ; therefore he soon after adds, 'But even if you make the incision here, it is a bad case : for there is danger of an hæmorrhage, which may immediately destroy the patient ; for there is no method of restraining a profusion of blood from the liver†.' Therefore he recommends to make the incision by an actual cautery, that may both cut, and make an eschar at the same time ; for that by this method the actual cautery removes all danger of an hæmorrhage, at the instant the wound is made. In this case Hippocrates‡ also recommends the application of a cautery, when the liver is very much swelled, and points outwards. However, there seems to be no such great danger of a fatal hæmorrhage from an incision that is prudently performed ; for, when such an abscess is opened, the point of the knife or lancet is lodged in a bag

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quamvis neutri lateri incumbere potuerit, tamen facilius dextro quam sinistro, ad quod quid ponderosi in corporis commotione perlabi sensit. Alvus erat difficilis et cum clysteribus vel lenientibus pharmacis commovebatur, exibant faeces pituitosae et biliosae. corruptae. Urina fuit subflava, tenuis, cum pauco sedimento coque divulso. Punctio, quae aegro molestissima fuit, nullis unctionibus, emplastris caet. remisit. Tandem barbitonsor quidam, doloris mitigationem pollicitus, imposuit cataplasma anodynum emolliens, unde tumor crevit efferebaturque magis ad umbilicum et dilatabatur ita, ut quidam suspicati sint hunc morbum in hydropem terminaturum. Aliquot diebus post in ileo dextro in conspectum venit tuber, quod barbitonsor existimavit ab apostemate inter musculos abdominis genito prodiisse, quare apertionem suasit. Ego cum nec undationem, nec alia suppurationis signa manifesta deprehenderem, conatui barbitonsoris restitui. Aeger morbi molestiae ac diuturnitatis pertaesus, permisit sibi a barbitonsore lapidem causticum (ab incisione enim abhorrebat) apponi. Hic lapis triduo, maximo aegri dolore ac cruciatu, abdominis musculos ad peritonaeum fere usque perrosit et antequam abdomen penetraret, pus in folliculo collectum intus, folliculum rupit atque per abdominis cavum inter peritonaeum et intestina dispersum est. Tumor desiit, durities evanuit, eodem die aliquot animi deliquiis correptus, animam dedit. Aperto corpore invenimus vomicam simae parti hepatis (cujus non parum putrefecerat) connatam eamque satis magnam atque apertam. Reliqua fuere satis sana."

C. Pruys van der Hoeven, *De Arte Medica, lib. i. p.* 196.—*Leyden* 1838-1840.

This excellent work, is not less valuable for the purity and elegance of its style, than for the admirable judgment with which the labours of both ancient and modern writers are brought into an harmonions combination, illustrating the present state of medicine. It is a pleasure to old Indians to see the observations of Johnson and Annesly in their Latin dress.

* De Causis et Signis Morb. Diuturn. lib. i. cap. 13, p. 42.

† Ibidem.

‡ De Internis Affection. cap. 30 charter. Tom. vii. p. 661.

full of matter, by which it is kept at a distance far enough from any subjacent blood-vessels. Besides, observations teach us, that the whole substance of the viscera is sometimes melted down by a purulent abscess, without any consequent hæmorrhage although they contain very large blood-vessels. This is apparent in pulmonary consumptions, in which the whole substance of the lungs is often consumed before the patients die, and at last they expire not with any hæmorrhage: and the celebrated La Motte* informs us, he was surprised to observe an opened abscess in the liver, which discharged a pound and half of matter, and in which he could turn round his fist without any resistance, to be nevertheless attended with no discharge of blood. Moreover, Aretæus† advises the actual cautery to be entered only deep enough to reach the matter, because the danger of this hæmorrhage springs from the vessels eaten through, or else injured by the knife, in the bottom of the abscess; and that therefore with this precaution there must be no danger of an hæmorrhage, since the cautery could not be able to reach the said vessels. Again, when eschars are thus produced by cauterising, they often require many days before they can be mollified and cast off from the living parts, which is not to be effected without the greatest pain; and even frequently such eschars, when they are upon the point of separation, require some assistance from the knife, when the purulent bag is not as yet opened: of which case an instance is given us in Bianchi‡, where the eschar being deeply burnt by the potential cautery, yet required to be perforated by the knife. But since delays are dangerous in the present malady, an incision is evidently to be preferred to the caustic. But it is most adviseable first to lay open the integuments of the abdomen by an incision, that the pointing part of the abscess may come into view, and then it may be entered by the knife without any danger of injuring the circumjacent parts."

We are now better prepared to estimate the improvements of modern practice.

The first notice of the employment of the trocar for opening these abscesses which I have met with, is in Vogel, who advises the use either of a double-edged scalpel *or of a trocar* (ancipiti cultro, *vel acu triquetrâ.*)§

Benjamin Bell seems to have used it about the same time. He says, "But piercing with the trocar is preferable, as in this way, we have it in our power to evacuate the matter, slowly, and gradually."‖

Although the employment of a *small exploring* trocar, seems to have originated with Dr. Murray, (see p. 102,) "to Dr. Mouat is due the credit of introducing and recommending the practice" in India; as we learn from the able Editor of the Madras Journal. (p. 227, vol. ii.) We now come to its use.

CASE OF HEPATIC ABSCESS—TWO EXPLORATORY PUNCTURES WITH DISCHARGE OF BLOOD—TWO EFFECTIVE PUNCTURES WITH DISCHARGE OF PUS—RECOVERY OF PATIENT. BY SURGEON WILKINS, MADRAS ARMY.

Private Samuel Wilks, H. M. 41st Regiment, Æt. 35; in India 14 years; was admitted into Regimental Hospital at Belgaum, under Surgeon Wilkins, on the 21st March, 1839 ; with symptoms of acute hepatic inflammation. Active antiphlogistic treatment was adopted in the first instance, and he was put under the influence of calomel, antim. tart. and hyosciamus. His gums became sore, but the saliva did not flow. On the 23d of March, after having a large blister the previous day, he got cold shiverings, succeeded by profuse clammy sweats; and on the 30th of the month he was examined by Dr. Murray, Deputy Inspector of Hospitals, who finding the liver much and very painfully enlarged, with strong reason to suspect the existence of an abscess, introduced a trocar to the depth of 1½ inch, at the lateral part of the thoracic arch, between the eighth and ninth right ribs, which did not seem to give great pain. *About an ounce of very black blood flowed out by canula, without any admixture of pus ; but the patient expressed himself considerably relieved.* The trocar was then introduced a little more anteriorly and deeper, under the cartilages of the eighth rib, *which gave exit to more black blood and also afforded great ease, but* still no pus flowed. Tents of lint were introduced into the wounds, and a large warm cataplasm applied on the side, with directions for it to be frequently renewed. The symptoms of suppuration persisted, the viscus continued tender and enlarged, there was a feeling of great weight in the part, the patient could not bear to turn on the left side, he had often a sensation of cold creeping down his back, and the night sweats were profuse. His pulse, courage, and constitution were however good ; and Mr. Wilkins having a strong idea that the common trocar had been too short, on the 5th April *introduced the one for puncturing the bladder by the rectum,* which being curved and longer than the other, reached the abscess, and gave vent to a quantity of sanious purulent matter, (about four ounces,) to the great delight and relief of the patient sufferer. *On the 11th the long trocar was again introduced* as the discharge had stopped—the punctures were kept open by tents—antimonials, and hydriodate of potass were administered—the discharge soon became healthy pus, which gradually lessened in quantity until it finally ceased on the 10th of May, when the wounds became so contracted that the tents could no longer enter, and soon finally closed. The liver resumed nearly its natural size, pressure could be borne without giving pain, the patient's health gradually improved, and he was discharged on the 7th of June ; since which time he has been in the performance of all his military duties (now two months), without having required to come back once to the hospital for medicine.

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* Traite Complet de Chirurgie, Tom. i. p. 327.
† Loco paulo ante citato.
‡ Hist. Hepat. parte tertiâ, Tom. i. p. 368.
§ Vogel prælect de cognoscendis morbis, edit. Gotting. 1772, vol. i, p. 176.
‖ System of Surgery, vol. v. p. 393, 5th edit.

SURGEON WILKINS' REMARKS.—In this case I cannot assert whether the liver did or did not adhere to the parietes of the abdomen, or to the diaphragm, or to the ribs. I do think, if there be no adhesion to the external parietes, or to the diaphragm, if an abscess of the liver be punctured through the peritoneum under such circumstances, that, on the collapse of the sac, its contents would flow into the cavity of the abdomen ; or, if in the case of the liver adhering to the diaphragm, and the abscess be punctured through this partition and the pleura, if the parts did not adhere to the ribs at the site of the operation, the matter would pass into the pleural cavity.*

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* See also operations by Surgeons Mortimer, Mouat, MacGregor ; (in his case the local discharge of blood seemed to cure the man) besides those I have quoted ; in Madras Quarterly Medical Journal, vol. ii. p. 225, &c.

Case II.—*Forwarded by the Medical Board of Bengal.*

CASE OF (DIFFUSE) HEPATIC ABSCESS PUNCTURED. ILLUSTRATING No. 779 OF THE PREPARATIONS.

(*By F. Anderson, Assist. Surg.* 1*st Troop,* 2*nd Brig. H. A.*)

Gunner John Russel, 1st Troop, 2nd Brigade, Horse Artillery. Ætat. 24½ years (looks 10 years older,) three years in India ; height 5 ft. 7¾ inches. Fair complexion, light hair.

Has been in Hospital four times, for rheumatism, a slight dysenteric attack, and an injury to the back, from a fall off his horse.

Dec. 9th, 1843. Hirudin. x. ad. Epigast. admov. *Vesper.* T. Opii. gtt. xl. in Aq. Menth. ℥i. diet spoon.	Admitted yesterday evening for intermittent fever of quotidian type, accompanied with some epigastric tenderness, without other local complication. Bowels have been very freely purged since admission by medicine. The fever usually comes on in the evening.
10th. R. P. Jacobi. gr. iij. Subm. Hydg. gr. j. M. Capt. j. 3 tia. quaq. hor.	At evening visit yesterday, the fever was just setting in, and was stopped effectually by the administration of an emetic. Bowels free, tongue furred, pulse natural.
11th. Omitt. Pulv. ℞. Aq. Acet. Ammon. ʒvj. T. Hyosciami. ʒss. M. ft. Haust. Capt. 3 tia. quaq. hora. diet Sago.	Was a good deal purged yesterday by the powders. No return of fever. No complaint, but of want of sleep at night.
12th. ℞. T. Hyosciami. ʒss. T. Opii. gtt. xxv. M. Camp. ℥iss. M. H. S. S. Pil. Purg. ij. stat.	No complaint, but of restlessness at night.
13th. Nil.	Passed a better night. No complaint.
14th. V: S. ad. ℥xvj. stat. ℞. P. Jalap. C. ℈ij. T. Antmonii gr. j. M. S. S. Fomenta. Vesp. Hirud. xvj. lateri sinist.	Complains to-day of acute pain on the left boundary of the epigastrium, and left hypochondrium, increased by pressure ; and catching him when he takes a full inspiration. Passed a bad night, pulse 80 and rather sharp, functions natural.
15th. V. S. ad. ℥xii. Ma. Sennæ C· C. Sulph. Magnes. Fomenta ter in die.	The blood was buffed. Coagulum large and firm, pain relieved. Can take a full breath with less pain than yesterday. Has still pain, on pressure over the left hypochondrium. Pulse 76 firm, tongue slightly coated, bowels not freely acted on.

16th. Hirud. xvj. later sinist. Pil. Hydrarg. ʒj. P. Ipecac. Ext. Gentian. ā ā ʒj. M. et. divid. in pil ; xvii. Capt. unam, tertia quaq. hora. Spoon diet.	He fainted when a few ounces of blood were withdrawn. Bowels have been freely purged. Pain of side much easier. A distinct fullness is perceived to-day on the left epigastrium, extending up to the termination of the sternum. In this situation percussion gives a dull sound, indicating enlargement of the left lobe of the liver. Decumbiture on right side. Has perspired a good deal during the night. No rigors. Can take a full breath without pain. Pulse 69, soft and rather weak, tongue moist.
17th. V. S. Ad. ℥x. stat. Hirud. xii. vespere. P. Jalap. C. ℈ij. Calomel gr. iv. S. S. Omitt. Pil. ut supra. ℞ Submur. Hyd. gr. v. P. Hyd. gr. vj. Ext. Hyosc. gr. iv. M. et divide in Pil. iij. Capt. iij. 3tia. quaq. hora.	Has passed a bad night, and complains of more pain in the side. Pulse 88, full ; tongue furred and white ; bowels free.
18th. Ol. Ricini. ℥i. stat. Cont. Pilulæ.	Passed a good night. Has no pain except on pressure over the fullness in the epigastrium, which continues unchanged. Bowels have been freely moved, pulse 94 soft, skin soft. No unusual perspiration during the night.
19th. ℞ P. Jalap. C. ℈ij. Subm. Hyd. gr. v. M. S. S. R. Subm. Hyd. gr. vj. Opii gr. ss. M. Capt. unam 2nd quaq. hora. Hirud. xii. Adm.	An indifferent night. Fullness more apparent, and dullness also on percussion, nearly over the whole of the epigastrium. Gums not yet tender, pain over the epigastrium greater than yesterday.
20th. Rept. Hirud. Cont. Pulv. 3 tia. hora. *Vesper.* Pil. Coloc. Calomel ā ā gr. vi. et. Morphii. Muriat gr. ss. *Diet* an egg and a pint Beer.	Gums very slightly affected, Pain relieved by the leeches, and has passed a good night. Bowels free, tongue cleaner, pulse 98 soft, skin moist.
21st. Rept. Hirud. Cont. Pulv. *Vesper.* Mur. Morphii. gr. ss.	A good night. Fullness as before ; uneasiness on pressure nearly gone. *A copious white deposit is in the urine.* Pulse 80, easily compressible, bowels not open.

22nd. Hirud. xvj. admv. capt. stat. P. Jalap. C. ℈ij. P. Zingi. gr. viij. Pulv. Calomel. &c. mane. et. vesp, *Vesper*. Mur. Morphii. gr. $\frac{3}{4}$.	At 1 o'clock this morning had a considerable increase of pain in the side. Pressure causes more uneasiness than usual. Some soreness of gums present, and slight ptyalism. Urinary deposit much smaller.
23rd. Cont. Pulv. Mane. et Vesp. Ol. Ricini. ℥i. Stat. Mur. Morphii. H.S. *Diet* 2 eggs and the Beer as before.	Suffered a good deal yesterday from epigastric pain. The fullness is increasing in this situation. Breathing unaffected. Decumbiture on right side and back. Gums still sore, but ptyalism slight. Urine turbid without deposit. Some weakness.
24th. Cont.	No apparent change. More ptyalism.
25th. Ol. Ricini. Ol. Olivæ āā ℥ss. stat. Cont. Medic. *Diet* chicken soup, Beer a pint as before.	The swelling appears less prominent, and more diffused. He moves in bed with greater ease. Has now little pain on pressure. Pulse 112 soft, mouth running but not freely, bowels not open. Dislikes the eggs.
26th. Omitt. Pil Subm. Hydg. &c. R. Muriat. Morphii gr. ij. Spt. Ether. Nit. ʒij. Vin. Antimon. ʒij. Aq. Acet. Am. ℥iv. Aq. Menth. ℥iv. M. Capt. ℥i. ter in die.	Had a return of pain in the epigastrium during yesterday, which was relieved by the application of leeches and fomentations. Slight ptyalism. Bowels open, pulse 100. A seton was inserted over the prominence in the epigastrium, and an incision at its upper opening was made down to the peritoneum. No fluctuation can be perceived in the epigastrium.
30th. Cont. Med. *Diet* M. Wine, &c.	During this interval little change took place. To-day for the first time an indistinct feeling of fluctuation could be perceived in the swelling. He would not permit a trocar to be inserted.
1st Jan. 1844. ℞. Sulph. Quinin. gr. ij. Acid. Nitric. gtt x. Aq. Menth. ℥i. M. Haust. ter in die. S.	Emaciating perceptibly. Some hectic and night sweats. Pulse 112, weak.
3rd. Cont. S. Quinin. Haust. M. Morph. H. S.	He to-day allowed a trocar to be introduced into the upper opening of the seton where the swelling was most prominent, *and* 44 *ounces of thick purulent matter were evacuated.* He expressed himself much relieved by the operation.
4th. Cont. M. Wine et Haust. M. Morphii vespere. Pil. Purgant, iij. *Diet* as before, chicken soup, wine and Beer, wine in sago, jelly.	Has passed a good night, and feels much easier, about 10 ounces of sero-purulent fluid were to-day removed. Pulse 126 weak. Much emaciation.

5th. Ol. Ricini. ℥i. in Aq. Menth. Stat. Cont. Medic. 2 M. Wine. &c.	Not so good a night as yesterday. The night sweat more copious. Pulse 133 weak. Bowels not moved by the pills, six ounces of an ill-conditioned bloody serous fluid, exhaling a bad smell, evacuated. No abdominal uneasiness.
6th, 7th, and 8th. Cont. Omnia. Wine, &c.	The discharge averages about 8 ounces, and during this period has become more favorable in character. The strength is, however, quite exhausted, and the small thready pulse, the hectic and night sweats, indicate a speedy termination to his sufferings.
9th. ℞. Sulph. Quinin. gr. iss. Opii. gr. ss. Am. Carb. gr. v. Camphoræ gr. iv. M. Ft. Pulv. quaq. hora tertia S. *Diet*, a qt. of Beer, c.	Occasional delirium during the night. Complains of sharp pain in the left hypochondrium. Countenance sunken and death-like. Discharge continues copious and fetid. Bowels open, pulse 140, small and thready. He only relishes the beer.
10th. Cont. Omnia.	All night delirious. Pulse quivering and very small; countenance cadaverous. Discharge as yesterday (about ℥viij. daily.)
11th.	He died quietly at sun-rise this morning.

Sectio Cadaveris.

Extreme emaciation of the body. On laying open the abdomen the (left) lobe of the liver was found adherent over its whole anterior surface to the parietal peritoneum and also to the stomach. This lobe was extremely enlarged,—extending downwards to within an inch and a half of the umbilicus, and into the left hypochondrium so as to be in contact with, and, bound by adhesion to, the spleen. The aperture made by the trocar led into an immense abscess that occupied nearly the whole of the left side of the organ ; it contained a large quantity of matter, mixed up with sloughy shreds. The substance of the liver surrounding it was soft and gave way easily under slight pressure. Rather less than a quarter of an inch of the substance of the left lobe had been penetrated by the trocar in opening the abscess.

The right lobe was enlarged, and on its surface, and throughout its internal substance were scattered many small abscesses, or collection of matter, few larger than a hazel-nut. Around these little deposits no inflammatory appearances were found; some contained matter as thick as curd. The other abdominal organs and the thoracic viscera were healthy and without adhesions.

Loodianah, January, 1844.

I owe to the kindness of Mr. Forsyth the permission of the Medical Board, to publish the above very interesting case. It would appear that the matter was not encysted—"*sloughy shreds*" and "softened substance of the liver" are mentioned, but no cyst is spoken of; hence perhaps, the unfortunate issue of the case, it having been a diffused abscess. The refusal of the patient to have the liver punctured, producing delay, gave time for the increase of the abscess, and for new deposits.

CASE III. HEPATIC ABSCESS, CAUSING EMPYEMA—PARTLY EVACUATED BY PUNCTURE—PARTLY THROUGH THE AIR PASSAGES—STATE OF THE BRONCHIAL TUBES—HEPATIC CICATRIX.

CASE OF LIEUTENANT B——, H. M. 29TH REGIMENT, AT BELLARY, BY ASSISTANT SURGEON MACGREGOR.*

This Officer had laboured under chronic bowel (and probably hepatic) complaint since 1836; and on the 6th of February was admitted under the head of hepatitis chronica, having only been a fortnight out of the sick list. He suffered from pain of side, exhausting perspirations, nausea, vomiting, and cough, with expectoration. The expectoration was slight at first, but by degrees nearly a pint of bloody puriform sputa came away in the course of the twenty-four hours; and his symptoms indicated the existence of hepatic abscess.

9th Feb. 1839.—A passage between the abscess and the bronchial tubes was now distinctly obvious; he complained of great dragging pain in the liver; and had high irritative or hectical fever.

16th.—About a pint of red purulent matter was expectorated, composed partly of hepatic pus, and partly of bronchial matter; the stethescope indicated an absence of respiratory murmur below the mamma, anteriorly, and announced an occasional splashing sound.

17th.—*The presence of bile was discovered in the sputa.*

26th.—His ankles became œdematous, and he had vesperal exacerbations of fever.

March 1st.—Pulse 140.

3d.—He was delirious, and the prognosis most unfavourable.

8th.—A distinct succussion is perceptible in the side during coughing.

On the evening of the 16th Dr. Murray arrived, and visited him; and in order to give some relief to his great suffering, from the constantly teazing cough and expectoration, which entirely prevented his sleeping or resting, he introduced a trocar between the ninth and tenth ribs, obliquely upwards and inwards with the effect of reaching the abscess, and drawing off more than nine pints of thin flaky purulent matter. The canula was left in the liver with the view of allowing the matter to drain off as it formed; to prevent its escape into the peritoneal cavity; and to favor inflammation and adhesion between the liver and the external parietes at the place of puncture. *Dissection however shewed that no adhesion took place, but a very important fact was established, viz. that notwithstanding two layers of peritoneum were punctured, no pus escaped into the general cavity of the abdomen.* The canula was removed on the 17th, and re-introduced, but was displaced by coughing; yet the matter flowed out afterwards through the opening it left, as did also air when he coughed.

18th.—Still experiences great relief, and regrets the operation was not performed earlier. A pint and half of pus discharged.

19th.—Drank a bottle of beer, and ate some mulligatauny and rice for dinner, with relish.

20th.—It was found advisable to re-introduce the canula upon the trocar as the matter was not flowing freely, and he felt uneasy in consequence. A pint of pus drawn off. The canula was then withdrawn, and a tent introduced.

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* Madras Quarterly Journal, vol. I. p. 478.

21*st.*—Has passed *per anum* some red-coloured matter like what came off from the abscess. Cough not very troublesome, but he is exceedingly weak. Much fœtid pus discharged, smelling strongly of sulphuretted hydrogen.

22*d.*—Had a fit of exhaustion, and died last night, about midnight.

Sectio Cadaveris.

Chest.—The right lung involved in disease with the liver.

Abdomen.—Liver very large, extending down to the umbilicus; but without any adhesion to the stomach or intestines. With regard to the connection between the right lung and liver, minute examination was now made, not only in consequence of there being an opening into the bronchial tubes, but also to ascertain the state of the artificial puncture through the intercostal muscles. The right lung was only prevented from collapsing by extensive adhesions between it and the walls of the chest, passing in the form of an arch above the region of the mamma, from the sternum to the spine. Above this there were no adhesions, and the pleural cavity was filled with a red serous fluid of very fœtid odour; but whether it came from the abscess in the liver, or had been caused by pleuritic irritation, was doubtful.

The artificial opening attracted attention. The tent lay in it. The trocar had gone through two folds of the peritoneum, and easily reached the abscess, which was distant half an inch from the surface. The peritoneum lining the ribs was reddened, and at one point some thickening had taken place, but no true plastic lymph thrown out. The same was the case in the peritoneal covering of the liver—the hepatic tissue was livid and inclined to green. *Though no adhesion had taken place between the two opposite layers of the serous membrane, it was satisfactory to find that not a drop of pus had escaped into the abdominal cavity, and that no inflammatory effusion had ensued in any point.* About an inch above the opening, a strong adhesion existed between the parietes of the chest and the liver, continuous with the adhesions before spoken of, and seemed to confine the abscess, which thus had its external boundary in the walls of the chest, its upper boundary in the substance of the lung, and its inferior one in the body of the liver. The extent of the abscess was eight inches from its upper to its lower extremity, and its walls in the substance of the lung were strengthened by a distinct red layer of lymph. It was not empty, notwithstanding all the evacuations, shewing that its surface must have secreted very rapidly and copiously. At the upper part of the cavity, the substance of the lung was quite softened and disorganized, and several vomicæ were discovered. The bronchial tubes opened into the softened mass by abrupt eroded orifices, thus pointing out the road through which the brick red sputa and pus had been expectorated. There was not merely one distinct opening, but all the inferior ramifications had the same kind of abrupt termination. On the anterior surface of the left lobe of the liver, there was an appearance which resembled the cicatrix of an old abscess. There was a central depressed spot of soft ligamentous matter, from which radiated four furrows, arranged nearly in a crucial form; but this appearance is difficult to account for, as on examining the parenchymatous substance underneath, it had no corresponding mark of cicatrization.*

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* In No. 184, p. 63, is the same state of cicatrix: in the case also examined by Surgeon Mockler, which had been operated upon by the late Inspector-general, Dr. Murray, no appearance of an abscess having existed was found. See page 133.

CASE IV. ILLUSTRATING NO 555, HEPATIC ABSCESS MISTAKEN FOR TUBERCULAR PHTHISIS—ACCOUNT OF THE STATE OF THE AIR PASSAGES, BY WHICH THE PUS WAS DISCHARGED : SPONTANEOUS FRACTURE OF THE FEMUR.*

T. A., aged 21, was seized in the month of August, with violent diarrhœa, which, in spite of all the usual remedies, continued for some weeks, during part of which time, there were some symptoms of dysentery ; these however were not severe. The immediate cause of his illness, appeared to have been the remaining in wet clothes; after having been exposed to inclement weather. He would frequently complain of rheumatic pains in the extremities, and often of a dull pain in the right hypochondriac region ; these, however, were transient, and in the middle of September, he was rapidly recovering, until, contrary to the instructions given, he went out to dine with a relative. A day or two after this, he was seized with all the symptoms of irregular intermittent quotidian fever, the paroxysms of which were most violent. This continued for about a month, during which time the usual remedies, with an abundance of quinine, were administered with varied relief ; but his constitution had received so severe a shock, that he was reduced, from being a stout, hale, robust youth, to a pale, and ghastly looking attenuated spectacle ; with a weak hollow voice, a quick bounding, yet feeble, pulse. But, by the middle of October, he appeared again recovering, though the hectic flush, and occasional cold sweats, foretold, that the worst was not yet past. He was now ordered the most nutritious diet, with tonic medicine, such as calumbo, with a free allowance of beer and port wine. Before the end of October, he again ventured out, though in opposition to his medical advisers. On returning, he boasted of having done himself much good. During the night following, he was attacked with severe pain in the bowels : this was relieved by a purgative. The next day he complained of a slight cough, attended with pain in the right hypochondriac, which, in the course of the next day, was followed by the most severe spasms and difficult breathing, a strong bounding full pulse, high fever, and incessant cough. These, however, were somewhat relieved by active treatment : he was bled, leeched, fomented and blistered, and a mild mercurial course adopted. These measures could not be carried to any great extent, on account of his emaciated condition ; and although the violence of the spasms was somewhat relieved, yet they did not cease for eight or ten days, when they left him, in a weaker, more emaciated, and more hopeless, condition, than ever. The cough daily increased, and in the beginning of November, the expectoration was purulent and copious, which was attended with increase of hectic fever. He was now too feeble to raise himself without assistance : and in an endeavour to turn round in bed on the left side, he fractured the femur, in a very oblique direction : the length of the fracture being about six inches. His leg was placed on one of McIntyre's splints, but every attempt to produce a union proved useless. The purulent expectoration increased, attended with great pain in coughing : he continued, however, in this distressing state, till the beginning of December, when he died.

Post-mortem Examination.

Head.—Slight effusion in the ventricles.

Chest and Abdomen.—The heart and arteries, alimentary canal, the spleen and kidneys, were all natural, except, that the latter were paler than usual, and the heart somewhat attenuated. The under surface of the liver, and its left lobe, were healthy : but it was found impossible to separate the upper side of the right lobe from the diaphragm, to which it was adherent throughout the greater part of its extent. It was therefore determined to remove them together ; when it was found, that the lung was also adherent, to the same extent, on the opposite side ; and all appearance of the diaphragm obliterated, except a narrow border by which it maintained its position to the walls of the great cavity, from which the mass of the liver, diaphragm, and lung, was removed. On slicing the liver, five or six large irregular cavities were found, filled with pus, in the centre of its substance. From these, there extended, in the form of ramifications, several sinuses, passing through what had formed the diaphragm, and could be traced to a considerable extent, through the substance of the right lung, and opening into the bronchial ramifications, in which was found a considerable quantity of pus. One of these sinuses was so large as to admit of the little finger. The lung was much consolidated, but there was no appearance of tubercles, or other disease, in its substance. The body of the deceased was closely watched, during the whole examination, and no part was permitted to be taken away.

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* From India Journal of Medical Science, July, 1843.

On examining the fracture, the bone was found in a state of caries ; so soft, that parts of it could be rubbed to powder, between the thumb and finger. It was altogether separated for a considerable extent, from the periosteum, but there was no appearance of suppuration.

There is no doubt, but that suppuration in the liver is often mistaken for Phthisis, and such was the false prognosis of each physician and surgeon, (five in number,) in the present instance.

Case of Hepatic Abscess successfully evacuated by the Seton ; with Practical Remarks.

(*From John Murray, M. D. Assist. Surg. Bengal Horse Artillery.**)

July 14th.
Fiat V. S. ad Syncopen.
℞ Pulv. Jalap. Co. ʒi. Hydr. Submur. gr. iv. M. ft. pulv. s. s.
Spoon Diet.
Rept. V. S. ad Syncopen.

Gunner John Schofield, æt. 24 ; three years in India, of fair complexion and regular habits, but debilitated constitution ; admitted into hospital 14th of July, 1839 complaining of acute pain in the right hypochondrium, increased by pressure, or full inspiration—no pain in the shoulder—liver enlarged ; bowels purged ; pulse 100 full ; tongue clean, skin cool. He was in hospital some time before with hepatitis ; and the present symptoms are of several days' standing.

Vespere.
℞ Hydr. Submur. ℈i. Ant. Tart. gr. ij. M. ft. pulvis s. s.

Bled to 28 ounces, causing fainting ; blood cupped and buffy ; pain in the side still severe on pressure ; four scanty yellow motions from the medicine ; pulse 104.

15th.
Rept. V. S. ad Syncopen.
Rept. Pulv. Jalap. Co. sumat Mist. Ant. Tart. ℥ ij. 4 ta q. q. hora.

Was bled last night to 16 ounces with effect—blood cupped ; no stool ; pain on pressure still acute in the side ; pulse 96, sharp.

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* Madras Journal, vol. iii. p. 275. The treatment in this case is well deserving of attention.

Vespere.	Bled to 16 ounces, causing fainting—blood cupped; pain much relieved; two stools.
16th. Applr. Hir. xvi. lat. dextr. Contin. Mistura. ℞ Hydr. Submur. ℈ss Ant. Tart. gr. i. M. h. s. Spoon Diet.	Pain in the side relieved, but still felt on pressure; liver somewhat reduced in size; pulse 88; tongue furred.
17th. ℞ Pil. Hydr. Hydr. Submur. Extract. Colocynth. Co. âa ℈i. ft. mass. in pil. xij. divid. 2 ter in die. sumend.	There is a circumscribed swelling extending about three inches beyond the edge of the ribs towards the umbilicus, soft, and painful on pressure; gums slightly sore.
18th. Applr. Hirud. viij. lat. dextr. Contin. Pil.	Two stools, gums tender, slight pain in the side; liver still very large; pulse 88; tongue furred; skin warm.
19th. Rept. Hirud. viij. lat. dextr.	Gums sore, without ptyalism; pulse 88, nervous; tongue furred.
℞ Gambogiæ gr. i. Pulv. Scammon. gr. i. Pulv. Scammon. Co. gr. iij. Jalap Co. ʒi. M. ft. pulv. s. s. Contin. Pil. meridie et Vespere.	*20th.*—Continue Pulv. et Pil. *21st.*—Applr. Vesicat. lat. dextr. Contin.
22d. Omit. Pil. Rept. Pulv. Jalap. Co. ʒi—To have extra congee.	Mouth very painful, without ptyalism, preventing sleep.
24th. Rept. Pulv. Jalap. Co.	Mouth less painful; slight ptyalism; the liver still projects.
1st August. Spoon diet with one pint of Milk.	The liver is generally reduced in size, except in the situation of the tumor, where it is still prominent.
5th. Applr. Hirud. xij lat. dextr. Rept. Pulv. Gambogiæ &c. Omit Extras.	Pain in the side returned last night, from irregularity committed in diet for several days; food undigested; liver more generally full.
6th. Reptr. Hirud. ut. heri ℞ Hydr. Submur. gr. x. Ant. Tart. gr. i. M. ft. pulv. s. s.	Slept ill; side painful; liver rather increased in size; pulse 100; skin warm.
7th. Applr. Vessicator. latr. dextr. ℞ Pulv. Ipecac. gr. xij.	Nausea produced by the medicine; side more painful; swelling increased and now extends nearly to the umbilicus, pulse 100, skin warm.

Hydrarg. Submur. ℈i. Extr. Colocynth. ℈ij. ft. mass. in Pil. xij. divid. 2 ter in die sumend. Spoon Diet.	*9th.*—Bowels freely opened ; side rather easier. *12th.*—The liver extends below the umbilicus, but he feels easier.
Contr. Pil.	
Applr. Cataplásma. Contr. Pil. Spoon Diet.	An incision was made down to the peritoneum, an inch and half below the margin of the ribs, and a seton inserted.
14th. Extra. Rice Pudding.	Seton painful; less uneasiness in the liver, which is smaller in size.
18th.	Seton discharging; liver still more diminished, bowels open: feels hungry. A *very copious* thick, green, fœtid puriform discharge came from the side of the seton last night and this morning, and the prominent round swelling in the liver has disappeared. The Liver now extends only one and half inch into the epigastrium. He sleeps well, bowels open.
30th. ℞ Infus. Cheyrett. Decoct. Sarzæ. lb. i. Pulv. Zingiber. ʒss. N. ℥ iv. ter in die sumend—To have rice pudding, jelly and one measure of Port wine.	Very copious discharge continues from the seton of the same character as before. Liver much reduced in size, but still prominent in the situation of the gall-bladder ; pulse 112 and weak; bowels open.
4th Sept. Chicken diet.	Regaining strength.
℞. Hydr. Submur. gr. iv. Extr. Colocynth. gr. x. s. s. Cont. Decoct. Sarzæ &c.	*9th.*—Discharge very slight, colour no longer green ; pulse 88.
12th. ℞ Acid. Muriat. dil. Acid. Nitr. dil. aa m. xij. Decoct. Glycyr. ℥ ij. M. ter in die sumend.	Copious greenish discharge again appeared; no pain in the side. *27th.*—Slight natural discharge from the seton, liver nearly reduced to its normal size, general health gradually improving.
	October 17th.—Convalescent—is now much stronger and stouter than he has been for a long time.

Remarks.—In this case I am confident abscess existed before the patient's last admission ; and had the swelling not been so near the situation of the gall-bladder, a preparatory incision down to the peritoneum would have been made on the 17th of July ; but having seen a distended gall bladder as large as the tumor then was,* and finding that it diminished by the means used, I

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* GALL BLADDER MISTAKEN FOR ABSCESS.

An excellent account of this is found in Vanswieten's Commentaries :

"Moreover, it is possible that the gall-bladder, distended with bile, and projecting its bottom below the margins of the false ribs, may lead the observer to mistake it for an abscess. In the year 1732, I opened the body of a poor woman who had been long afflicted with a jaundice ; and, for the two last months of her life, had been able to was induced to defer the operation. Irregularity in diet caused a relapse, after which there was no doubt in the diagnosis, but as the effect of internal remedies had been so satisfactory, in the first instance, they were again tried. After I made the incision into the integuments and inserted the seton for the purpose of bringing on adhesion between the liver and peritoneum, the tumor again diminished in such a manner as to induce me to delay making any puncture; and on the afternoon of the 27th August the abscess burst through the part where the incision was made, and where adhesion had evidently taken place; after which the patient's restoration to health has been progressive, and I have no doubt of a favorable termination.

The abscess should have been punctured on the 15th or 16th of August, and though the delay led to no unfavourable consequences in this case, I by no means recommend my example to be followed, for when the walls of the sac become thin, there is no knowing when and where it may give way, and if the abscess had burst into the cavity of the peritoneum, the patient would have inevitably died, and I should have been to blame for indecision in my practice, after the light which has lately been thrown on this subject.

CASE OF HEPATIC ABSCESS CURED BY EARLY PUNCTURE.

(*By Dr. Everard, Asst. Surg. H. M. 54th Regiment.*)

Private James McEldoon, H. M. 54th Regiment, æt 38; twelve years in India; generally healthy, but lately of intemperate habits. Admitted into hospital 10th November, 1839, complaining of severe pain

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bear no food upon her stomach, so that she died wasted by a slow marasmus or consumption of the habit. Upon viewing the body before it was opened, the skin appeared every where yellow, and the fat entirely exhausted, whilst in the right ilium or flank a soft tumour shewed itself, extending from the lower margin of the false ribs down to the crista or spine of the os ilii; and as she had long before death complained of a stubborn pain felt through the whole hypochondrium and ilium of the right side, I must confess I suspected that a large vomica or abscess of the liver might here conceal itself; but the body being opened shewed the following appearances.

The stomach was very large, and distended with a flatulent matter; and, hanging pendulous from its two orifices, it descended so low, that the bottom of the stomach came within three fingers-breadth of the os pubis. The omentum and colon, annexed to the bottom of the stomach, were thrust backward still lower. The liver shewed itself of a bluish colour, hard and juiceless, projecting beyond the margin of the right false ribs: yet no vomica was found in the liver; only the branches of the vena portarum dispersed through it were very much enlarged or distended, as were also the veins of the omentum, mesentery, and intestines, after the manner of varices, and were very turgid with blood, while the rest of the body appeared almost bloodless. Now this tumour, which had shewed itself in the right ilium, was the bottom of the gall-bladder enlarged by its contained liquid, and extended as low as the right os ilium. The gall-bladder contained more than a pound of a limpid and inodorous liquor, a little inclined to a greenish colour, and of a saltish taste; together with which were a great number of stones, of various sizes and figures, which appeared outwardly to have a white crust of an harder consistence, which being broken contained a much softer and very yellow substance in its middle.

I have since read, that faithful observations have shewn, that the gall-bladder, thus filled and distended, has often occasioned a tumour that has been mistaken for an abscess of the liver. The celebrated M. Petit confesses, that, in a consultation among many other physicians and surgeons, such a tumour of the gall-bladder was unanimously agreed to be an abscess of the liver, the opening of which was assigned to be his province. But having cut through the integuments, this incomparable surgeon perceived the tumour subside or fall back, which brought to mind a like case before observed; and therefore he went no further on with the incision, but predicted that the bile would

Ft. V. S. ad effectum. ℞. Calomel gr. v. Pulv. Jalap. ʒi. S. S. Spoon diet.	in the right hypochondrium, increased by inspiration or pressure, which he says came on three days ago, and has gradually increased since. Has severe headache; pulse full; skin hot; bowels open; urine high colored.
Rep. V. S.R. Calom. Pulv. Antim. ā ā gr. v. M.; S. S.	*Vespere.*—Pain little relieved; bowels freely purged; pulse full.
11th. Rep. Calom. et. Pulv. Antim. á á gr. iij. ter in die. Spoon diet.	Pain easier; pulse soft.
12th. Applr. Hirud. xvi. p. d. postea cataplasm. calid. Contin. pulv. ter in die.	Side very painful to the touch, precluding minute examination. The liver appears enlarged, extending into the epigastrium.
13th. Rep. Hirud. x. et cataplasm; half a drachm of Ungt. Hyd. Fort. to be placed in each axilla and covered with thin bladder. Contin. Pulv. Spoon diet, extra tea.	Side less painful—the liver seems to extend nearly to the umbilicus.
14th. Pergat.	Pain easier—gums sore but no ptyalism; pulse soft; bowels open, motions dark green.
Rep. Hirud. xii., et cataplasm.; Pediluvium.	*Vespere.*—Side more painful; skin hot and dry.
15th. Contin. Ungt. et Pulv. Spoon diet and tea. *Vespere.*-Rep. Hirud. et cataplasm.	He has had cold sweats; but his countenance continues good.

soon come away by stool, which had lain imprisoned in the gall-bladder. The apparatus of dressings had not been long applied to the patient's wound, but there was a stool which brought away a great quantity of green bile; and, in a few days after, health was restored. There are many more observations of the like kind upon record.

The principal diagnostic signs, by which a tumour of the gall-bladder may be distinguished from an abscess of the liver, are, that the pain in the suppuration is throbbing or with a pulsation, attended with unsettled shiverings that are both frequent and hold for some time; that the tumour of an abscess has not so uniform or circumscribed a figure, nor is there in it at first such an apparent or easy fluctuation, which is most sensibly to be perceived only in the centre of the tumour, from whence all the circumference makes a harder resistance. But it is obvious enough, that the difficulty of distinguishing these tumours, is only when they occupy that region of the liver wherein the gall-bladder is placed."

Edinburgh translation, vol. ix. p. 193.

Another most interesting case by Dr. Stokes, in which the same mistake had occurred is given p. 53, vol. 3, Cyclopædia of Practical Medicine. In this case the gall-bladder was punctured and closed again: there was hepatic abscess also, which burst both into the bowels and below the peritoneal cavity.

17th.
Cont. Ungt. et. Pulv.
Omit. Ungt. et Pulv.

He can now bear the side to be examined without its giving much pain. Liver appears less enlarged.

18th.
Utatur Gargarism.—Alum. Contin. cataplasm.
Vespere.—R. Liq. Ammon. Acetat. ℥ss. Vin. Antim. gtts. xx. Mist. Camph. M. ℥iss. s. s.

Gums ulcerated without ptyalism; feels much general uneasiness, and does not look so well; bowels loose; pulse soft.

20th.
Cont. cataplasm.

Swelling more prominent, with feeling of fluctuation. There was evidently no adhesion between the liver and abdominal parietes. He is emaciated, and has sense of weight and oppression in the epigastrium.

23d.

The Deputy Inspector visited the hospital this morning, and after examination of this man, thrust a trocar into his liver through the epigastrium, without waiting to make any preparatory operation to induce adhesion between the parts. About a pint and a half of thin brown matter came out on withdrawing the stilette, and the canula was left in the wound. The man looks pale, and has become weak. Pulse soft; skin cool; bowels freely open.

The canula was tied in by a bandage round the body, a bit of lint put into the orifice, and a large warm poultice over all. To have some light fish for dinner, and half a pint of beer; with tea and toast.

Vespere.
R. Acet. Morphiæ gr. ss. h. s. s.

Has got great relief from the operation. Matter oozes out from the abscess by the canula.

23d.

Had a good night; doing well.

Subsequent History.—For a few days after the operation, about 2 oz. of unhealthy greenish bilious matter came away, after which the discharge became gradually more healthy (occasionally bilious) and less; but did not entirely cease till the 19th February following. As the liver continued enlarged and hard after the evacuation of the abscess, hydriodate of potash was given with advantage.

At present (10th March) his appetite and general health are good, he sleeps well, and he has recovered his strength. He has no uneasiness in the side, though the liver is attached to the abdominal parietes where it was punctured, and feels somewhat enlarged. There was never any effusion of matter into the cavity of the peritoneum, as adhesion soon took place after the puncture. The operation is considered to have saved this patient's life.

CONTINUED BY E. MOCKLER, ASSISTANT SURGEON, 15TH HUSSARS.

The poor man died since from another disease, the post-mortem examination, at which I was present, proves most satisfactorily the beneficial effects of the operation, as well as holds out strong inducements for its performance, and great hopes of its success in future cases.

Private James McEldoon, H. M. 54th; ætat 38, embarked on board the ship "Thomas Grenville" in April 1840, in the capacity of a servant to an officer going home, as fellow-passenger of mine; he was in very good health when he went on board, and continued so for about two months, after which time, he was attacked with dysenteric symptoms, for which he was treated by the Surgeon of the ship, Dr. Smith, a very intelligent medical person. The cause assigned for his complaint was, the salt provisions he had been using. The case turned out a very bad one and likely to prove fatal; and such unfortunately was the result. Dr. Smith allowed me a post mortem inspection, though heavy obstacles were thrown in our way to prevent it.

Sectio Cadaveris.

On dividing the muscles of the belly, the liver appeared larger than usual, and of rather a darker color: there were no adhesions to any part of the abdominal parietes, except at the point where the puncture had been made; and at this spot it appeared as if it was attached to the walls of the abdomen, or rather hung from it by a cord, about the size of a small goose quill. *On dividing its substance minutely, not the slightest vestige of the sac of an abscess could be found; or any thing that would indicate such having existed.* The small intestines presented an unusually vascular appearance, and the larger ones, particularly the rectum, were covered with patches of ulceration, and studded with spots, as of old ulcers which had healed up.

The roughness of the weather off the Cape at the time, and the many inconveniences on boardship must plead as an excuse for so short a detail of so interesting a case."*

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* Madras Journal, vol. iii. p. 393. See a very instructive case by Surgeon Smyth, (p. 393,) particular description of the hepatic cyst.

DIVISION—THE SPLEEN.

Preliminary Observations.

There is no organ in the body, which has latterly been so frequently and patiently investigated with reference to its use in the economy, as the spleen. Nor is there any one, which has hitherto, afforded less satisfactory results; even when examined by that most wonderful searcher of hidden mysteries, the microscope. Muller says, "we are quite ignorant of the functions of the spleen." It is certainly not less true in the nineteenth, than it was in the seventeenth century, that our knowledge of its functions is little else than conjecture.*

The Greeks, and probably the Hindus before them, alike believed in some peculiar operation of this viscus, which was necessary to the preparation or purification of the blood. Galen says, " It is the office of the spleen to attract the melanotic blood from the liver." (DeLocis affect Lib. vi. cap. 1.) † Whilst H. H. Wilson says of the Hindu writers—" In speaking of the spleen, indeed, they assign to it a function which no less distinguished an anatomist than Sir Everard Home is disposed to think that it discharges, and declare that its *duty is the preparation of the blood.* In what manner it performs this office they do not pretend to describe, as they were no doubt ignorant of the constituent parts of the sanguineous fluid, and equally unacquainted with the powers of the microscope."

Until medicine was fixed upon the immutable basis of anatomy, the physiology of this and of other organs, was liable to change, with each new system of medical philosophy—and not only this, but the pathology also. Hence Hippocrates, who assigned to it the preparation of one of the four humors, (the aqueous) ‡ upon the good or ill condition of which he makes health and disease to depend :—finds in its disordered functions an easy explanation of watery dropsical affections: whilst Galen and all his numerous followers, explain as easily the dark discoloration of the skin, by referring it to his views of the spleen. The Arabs, who took them as their chief guides, modified their opinions, but retained the universal truth, that every enlargement of the spleen, and every abscess, is followed by emaciation, and watery state of the blood.§ Of the moderns, whilst some have thought it was

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* Sagacissimi moderni naturæ scrutatores ingenue fateantur, rem omnem circa *lienis* usum niti meris conjecturis." *Castelli Lexicon.*

† He says in another place "—Est autem splenis corpus rarum admodum atq. laxum spongie instar, sic ut crassos et melancholicos succos facile trahat excipiatq. &c." Whilst he says above,—" Parró lien limosos et melancholicos succos in hepate genitos trahit per venosum meatum." *Gal. de usu part Lib.* iii. *p.* 222.

‡ Habet autem mulier et vir, quatuor species humoris in corpore á quibus morbi fiunt Sunt autem species hæ; pituita, sanguis, bilis et hydrops seu aqua;—*Et sane sanguini fons est cor, pituitæ caput, aquæ splen.*" Hippocrates lib. iv. *de morb.* p. 180 Vincent—Lug. 1564.

§ This is apparent from reference to Hali Abbas whose rare work has been lent to me by my friend Dr. Sprenger. It was translated within a century of the author's death at Antioch in 1127. (But who is the said Stephanus ?) This is the first *printed* edition dated Venice 1492. Mr. Carey's ample resources, and typographical skill, enables me to present the fine old Arab in his Latin garb of the 14th century. He still maintains a most venerable appearance notwithstanding this curious " crabbed " habit.

"Sequitur at oia apostematu' splenis genera eiusq; magnitudine corporis matics. unde et Hypocras dixit. Splene augme'tato corpus macrescit: et reprimat corsius corpux lentu redit. Ait et in libro de locis infirmantib' Galien 'qq splenis paruitas chimoru significat bonitatem. magnitudo malitia. Et Hypocras in epidimiaru' libro tradidit: qm

a mere reservoir for that increase of blood, after a meal, which could not be safely admitted at once into the system, Hewson's theory is one that would most recommend itself to those, who in this country, have frequently observed the very general consequence of spleen disease, in bringing on a sort of anemic chlorosis. For he conceived, that it, in some way or other, gave rise to the formation of the red blood particles, by the secretion of a fluid from arterial blood which became subsequently mixed with lymph. Professor Schultz affirms that "on a chemical analysis of the portal blood the plasma is found to be less in quantity and more fluid, and *containing more coloring matter*, than that of venous blood." He adds that "in the vena portœ two things take place—

"1. The old useless vesicles are taken out of the circulation.

"2. The debris or dead film of these vesicles are separated from the blood."

A similar opinion of its use is stated by Hali Abbas in the eleventh century (Cap. 19—liber iii. de splenis assignatione et utilitate,) "It is the office of the spleen to clear off the muddiness and feculence (debris) of the blood, &c. He is sufficiently precise, since he assigns the same office to the same vessel (the vena porta) but the order is inverted, owing to the circulation of the blood being at that time unknown.* Avicenna seems to have had the same idea of its office.

In this respect therefore Professor Schults' views possess no novelty, being only a more precise adaptation to modern science, of the opinion of more ancient writers.

But one feels no little surprise, that any one, who has, like Muller, seen the wonderfully complex structure of this organ under the microscope, should yet arrive at such an impotent conclusion, as he has stated in these words; "We merely know that its importance in the economy is not great." And this he argues from the fact, of its being possible to remove it in dogs, without any very apparent injury to health. But admitting this, nay and even its being possible to remove it in man, which appears to have been done in this country,† without much constitutional mischief;—it is yet quite certain from other observations that this cannot always be done with impunity.‡ Is it not quite as fair therefore, to infer, from the organ when diseased, being invariably followed by a generally cachetic state, that its functions whatever they be, are of no

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cui apostema in inferioribus splenis acidit ptib': sanguis eius fit tenuis; extrema calida aures frigide. Et sanguinis tenuitas qm'splen sanguis attrabit feces: in quo si fuerit àpostea amplius co'trahit fortiusq; et sanguis remanet subtilis."

Sermo nonus prime partis libri co'pleti artis medicine qui dicitur regalis dispositio hali filij Abbas discipuli abimeber Moysi filij Seiar de interiorum me'brorum passionus signis habes quadragintaunu' capitula. Translatio Stephani phic discipulo ex Arabico in latinum. (Fol. 58.)

* Est aut splenis utilitas ut turbiditate' mu'det sanguinis ejusq; feces et ad se co'trahat per vas qo ad ipsu ab epatis mittit conico latere: et ab eo fu'dat' in vas aliud qo ad stomachum fertur. *Hali Abbas, Lib iii.* fol. 22.

† See page 79.

‡ See a case referred to in the Bibliothica Medico-Chirurgica, Leipzig. 1838, article Quittenbaum, "historia extirpationis splenis hypertrophici cum fortuna adversa femina viva."

It should be borne in mind, that this organ is frequently double in animals and occasionally also in man. Morgagni says (Epist. xlviii. n. 56), "I have seen it three times;" and besides the instances which he has referred to (Epist. xxxvi. n. 50—Epist. xviii. n, 34—Epist. lxiv. n. 2,—the most striking case is found) Epist. lxvii. n. 2.

mean importance. For it is a fact that spleen disease in this country, whenever it affects the young, is always followed by a dangerously disordered state of health, uniformly characterized *by a want of red blood.* We may conclude therefore, that an uniform relation as cause and effect, subsists between enlargement of the spleen and this state of the blood. For it is just as easy, in nine cases out of ten, where children are affected, to judge of the state of the spleen by the state of the palpebral conjunctiva, as to judge of the heart's action by the state of the pulse. If there be an increase and return of red vessels, the spleen is diminishing ; if there be diminution of red vessels, the spleen is enlarging. This may apply more especially to the young, and I believe it does. But the spleen, and the thymus too, may not be the less essential, and important, should their chief function be, to provide an increase of red particles of blood, commensurate with the rapid increase of all living organization in the young. It is therefore no logical conclusion to say the organ is of no use, because we cannot exactly discover, in what its use consists. The supra renal capsules, the thymus gland, the thyroid and the spleen, may all have at one time or other an use, as well as the placenta ; but which may not, at every period of life, be of the same necessity. Moreover, this view of its being designed to prepare red blood, seems borne out by other analogies; for women, who in this country, have become completely chlorotic from long continued spleen disease, nay even if it have resulted, as it does, in some young women, in general anasarca, yet will the whole of this disappear upon marriage, if followed by pregnancy, and sometimes it will never return. During this healthy activity of the system, the power of forming red blood returns, and the spleen regains its normal condition. Of this I have known some instances, besides the very curious case cited by M. Pinel, from the *Ephémérides des Curieux de la Nature.**

In my opinion, therefore, the strongest reasons for concluding, that to the spleen is assigned the office of preparing red blood, may be found in the invariable nature of its morbid conditions, which always indicate a want of red blood. To be convinced of this, we have only to compare the "LIENOSI" as described by Hippocrates, with the appearance of one labouring under chronic disease of the spleen, so concisely and graphically drawn by Mr. Martin. He says, "the complexion is of a dirty lemon colour, the countenance being puffed and bloated; the eye full, and of a peculiar clearness; the lips and tongue blanched and bloodless; in short we have a concentration of the cachexia of systematic writers." His reviewer adds, "This state, resembling the anemious condition induced by hemorrhage, and existing in chlorosis, on which we observed on a former occasion the spleen was very generally affected, is what we ever find associated with chronic affections of the same organ in this country."*

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* ENLARGED SPLEEN, CURED BY PREGNANCY.

From Pinel's Nosographie Philosophique, tom. ii. p. 502.

"Une jeune personne avait éprouvé pendant long-temps diverses affections hypochondriaques, des tensions abdominales souvent renouvelées, un état de constipation, des palpitations, des vomissemens d'une matière acide ; elle fit usage de divers médicamens, et li lui survint une douleur très-vive dans la région de la rate, ce qui fut suivi d'une tumeur qui avait toutes les apparences d'un squirre : la douleur disparut, mais l'hypochondre gauche conserva une dureté et une rénitence peu ordinaires. On fit usage sans succes de plusieurs moyens internes et externes, de fomentations, de linimens, des emplétres, des bains, etc. Ce prétendu squirre semblait occuper la moitié de l'abdomen, et s'étendre même jusqu' àla région de l'utérus, ce qui n'empèchait point d'ailleurs la jeune personne de selivrer à la danse et à tout autre exercice de corps sans éprouver aucune gène dans la respiration On craignait pour elle le mariage, à cause du peu d'espace qui semblait rester dans l'abdomen pour le dêveloppement de l'utérus dansun cas de grossesse ; mais comme elle fut fort recherchée à cause de sa beauté, le mariage eut lieu ; elle devint enceinte, et elle eut beaucoup à souffrir dans les premiers temps, tour-à-tour tourmentée par une perte d'appétit, des nausées, des vomissemens, des palpitations de cœur, des défaillances, symptômes qui cèdèrent peu à peu. Vers le terme de la grossesse, il se déclara des anxiétés, une chaleur vive, des syncopes, une fièvre continue, un ictére, etc., et on craignait pour vie ; cependant ses couches furent heureuses, et elle mit au monde un fœtus bien sain et bien conformé ; ses maux se dissipérent, ses lochies furent trés-abondantes, et on soupçonna même que cet excès d'écoulement était entretenu par une autre cause que l'etat de la matrice, comme l'indiqua la détumescence de la rate, qui ne conserva plus la moindre trase de son volume et de son induration antérieure ; affection qu'on doit attribuer, dans ce cas comme dans beaucoup d'autres, plutôt à une congestion sanguine qu'à oute autre cause."

Whilst that the chlorotic state is caused by an absolute deficiency of red blood we learn from the recent researches of M. M. *Andral* and *Gavarret*, "which have demonstrated, in a very striking manner, the nature of the remarkable changes in the blood of chlorotic patients: the proportion of the red globules to the other constituents of this fluid becomes diminished by one-half or even two-thirds below the healthy standard." † There can be therefore, no doubt, that the altered condition induced by spleen disease, is not appearance only, but a real loss of red blood. When examined after death the appearance is that of a slaughtered animal,—bloodless. (See cases.)

I have been able, by the kindness of Mr. Grant, and with the aid of his beautiful microscope, to verify some part of the following minute description of the anatomy of the spleen by M. Bourgery. And I think it will be hardly possible, to even read this, with any degree of reasonable credence, and still entertain the idea that the spleen was made for nothing. Even that which has been announced as Mr. Stevens' discovery, of its office, comes far short of the whole of what we require to know. It is quite inadequate to say, "The spleen is simply the necessary interposition of capillaries betwixt the splenic artery, and the venous portal circulation."‡ How does this explain the use of the complicated apparatus described by M. Bourgery, which I cannot see without feeling a conviction that so wonderfully elaborate a structure is designed to operate some important changes upon the blood passing through it. Moreover, the additional facts which have been added, by modern discoveries both in physiology and pathology, seem to bear out Mr. Hewson's idea, of its being essential to the formation of red blood globules, which receive in this organ, their vesicular envelope. This he inferred from observing red globules returning by the lymphatics of the spleen. His theory, I prefer therefore, to the many crude speculations which have lately issued from the press, inasmuch as it leads to the practical conclusion; namely, that we can cure the diseased condition of the blood, by restoring the normal condition of the spleen.

It may however, give interest to the anatomical details of this organ, and support Mr. Hewson's theory, if I adduce some of these modern discoveries alluded to. This may be the more necessary as it has been assailed by one very distinguished Physiologist, (Sir C. Bell) who has even turned Mr. Hewson's artillery against himself.

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* Brit. and For. Med. Rev. p. 363, xiii. † Medico-Chir. Rev. Jan. 1844, p. 209.

‡ Lancet.

Dr. Copland remarked in 1833 that "it seems extremely probable, that the colourless globules observed in the chyle form the central corpuscules (of the blood,) and when they have acquired their coloured envelopes in the progress of sanguifaction, constitute the red globules (of the blood.)"* Professor Schultz says, that "The vesicles are in reality formed in the lymph, and their granules are fully developed lymph globules." "The vesicles possess an organic contractility during life." "When they die they are no longer contractile, but flaccid." "In this state they lose the capacity of dilatation ; so that it cannot be by the dynamic property of endosmose, that the living vesicle is filled." "These vesicles, if arterial blood be examined, contain oxygen gas, absorbed in the lungs ; in venous blood carbonic acid is found in the vesicles. Large granules, with almost colourless membranes, have the greatest contractility. These are found in the greatest number in the rose-coloured lymph, in the thoracic duct."

We see that what Dr. Copland conjectured, Dr. Schultz has established. We learn the importance which is attached to the function of the vesicle—without it, the globule cannot contain oxygen ; it is not a perfect organism, nor fitted for its office of carrier-of-oxygen. Dr. C. J. B. Williams considers also the red blood discs to be the part of the blood upon which its vivifying property depends. Proff. Schultz adds, "the larger lymph globules become metamorphosed into the smaller ones, and around these a filamentous vesicle is seen to be developed, which is at first perfectly globular, colourless and transparent."† He shews in various ways that this vesicle is the seat of the red colour of the blood.*

Now, therefore, when Mr. Hewson says, that the blood particles receive this vesicle in the spleen, it is clear that the spleen is, in this sense, essential to the red colour of the blood. The manner in which the colouring matter is again extracted we have given at page 58.

But as to the specific influence, assigned in this work to the spleen, we see M. Bourgery speaks of afferent trunks penetrating the lymphatic plexus, *efferent* trunks leaving them. He conjectures that the lymphatic vessels "are not merely canals of transport but organs of elaboration," for they are divided into loculi, "the agglomeration of which gives the notion of a rudimental gland." Again, I would call particular attention, to his description of the splenic vesicles, whilst we bear in mind, Dr. Carpenter's remarkable proposition, "*that in animals, as in plants all the changes in which organic life essentially consists, are performed by cells ; scarcely distinguishable from*

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* Dict. Pract. Med. vol. i. p. 167, cap. 6.

† This is confirmed by Mr. Quekett's researches. (Microscopic Journal, No. 5 and Dr. Barry's observations. Proceedings of Royal Soc. 40-41, Nos. 46, 47.) Again it is confirmed by M. Remak, who says—"The blood corpuscules of a fœtal pig an inch long, *were from four to six times larger than those of the adult* animal, *and had from two to four nuclei separated by pale lines.*" "In the blood of a chick *in ovo* appearances were sometimes seen resembling *two nuclei united by means of a slender prolongation*, which led to the belief the blood globules were produced by the division of existing ones. Also M. Remak's observation upon the blood of the horse proves the assertion of M. Schultz. (See Edin. Med. Journal, vol. lix. p. 211.)

Mr. Gulliver thinks "the lymph globules and white globules of the blood, are the same in reptiles, only he doubts of this identity in higher animals." Mandl regards them as fibrine, Wagner and Muller "as lymph." Edin Med. Journal, lviii. p. 225.

one another by any well marked characters."* Now what action can be more essentially *organic*, than the formation of the blood globules? And where can we look for an organ better adapted to this office than the spleen? Does not the structure of the splenic vesicles, the absorbent veins opening into them, and their contents or splenic liquid, as described by M. Bourgery, almost amount to a demonstration, that in these organs the vesicles of blood are actually formed? I have seen the terminal veins, decomposed into cellules, separated by vascular constrictions, identical in composition to the vesicles which succeed to them; and also the floating vascular corpuscles, which were measured by Mr. Grant and found to be 1-800th of an inch in diameter. The "brilliant little spherules" were also observed, "collected in the form of a chaplet."

M. Bourgery comes to the conclusion, that the splenic blood is formed by, and deposited in the cavity of the vesicles, because though some of the globules are imperfect, yet others do not differ from ordinary blood globules. Far from agreeing with Sir Charles Bell, then, that the theory which Hewson entertained regarding the use of the spleen is "injurious to his reputation," I think it does him great honour, for it is confirmed by some of the ablest microscopical observers.† Neither can I agree with the able reviewer to whom I am indebted for M. Bourgery's account.‡ Indeed the very passage which he quotes, as containing no definite explanation of its use, does in my opinion comprehend the whole matter. THE SPLEEN IS "A VAST LYMPHATICO-SANGUINE GLAND; ITS VEINS AND VESICLES ARE AN APPARATUS FOR THE ELABORATION OF THE BLOOD." (See p. 142.)

Whilst M. Donné also regards the spleen as "the organ more especially charged with the important function of the manufacture of blood globules."§

MINUTE ANATOMY OF THE SPLEEN.

M. Bourgery says "in an injected spleen the discernible anatomical elements of its structure are ten in number: 1, vesicular membranes; 2, blood vessels; 3, floating vascular corpuscles; 4, a granulo-capillary basis; 5, a splenic liquid; 6, splenic glands, which are all lymphatic glands; 7, lymphatic vessels; 8, nerves; 9, cellular tissue; 10, a membrane enveloping the whole spleen. The first five of these compose the *vesicular apparatus* of the spleen, the blood-vessels being placed here because it is in these parts that they offer their most remarkable peculiarities. The sixth and seventh form the *glandular apparatus*. The last three are common to all parts of the spleen.

"1. *Splenic vesicles.* They are distributed in every part, being separated by partitions, to whose surface theirs is as 3·2. In the dried spleen they are irregularly polyhedral; in the injected spleen spheroid or ovoid, and this, it is probable, is their form during life, when they are filled by fluid. In the calf they measure, on an average, about 1-8th of an inch in diameter; in the dog and sheep they are of similar size; in man they are smaller and more regular, their average diameter being about 1-25th of an inch. None of them have a simple form; but the walls of all are traversed by vessels, which, covered by the lining membrane, form folds or falciform or crescentic lamellæ, like those formed by the umbilical vessels behind the peritoneum. The result of these folds, of which there is a series of various extent, is to decompose the principal cavity into recesses, and these again into loculi, on, the bases of which are seen in relief, the glands and granules and capillary ramifications."

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* Report on the *Microscope*, part ii. by W. B. Carpenter, M. D. (Forbes' Brit. & For. Med. Journ. vol. xv. p. 262.)

† Even the very expression is taken from Hewson, (see "Experimental Enquiries," p. 353,) who applied it very justly to Monro's attempt to rob him of the honor of discovering lymphatics in birds and fishes.

‡ Op. cit. Oct. 1842, p. 541

§ Edin. Med Jour. vol. lviii, p. 253.

In these vesicles there are two kinds of orifices ; 1. Those by which all the vesicles communicate with one another, which are nearly circular, with thin edges coverd by the lining membrane. There are two or three of these in each of the larger vesicles, and the diameter of each is about $\frac{1}{3}$ or $\frac{1}{4}$ of that of the whole vesicle. 2. The venous orifices, which are less numerous, and only scattered here and there, on any part of the walls of the vesicles indifferently. They are the absorbent mouths of veins of the same size as themselves, which are passing to the veins of the partitions ; and they are guarded by a crescentic fold, which forms an incomplete valve.

"The *intervesicular partitions*, or rather *spaces* are formed by the separation of the enveloping membranes of adjacent vesicles, and contain the vessels and the splenic glands. Their width or thickness is inversely proportioned to the size of the vesicles. Also, where two vesicles only lie together the partitions are narrow ; where several meet they are enlarged into irregular spaces filled with glands.

"The enveloping membranes of the vesicle are continuous with one another throughout the spleen ; so that one may consider them as forming a single membrane, homogeneous in every part, and divided into thousands of little ampullæ, isolated by constrictions, which constitute their orifices of communication, and supported by ramifications of vessels, which form a kind of soft frame-work of the whole organ. The membrane of each vesicle is formed of a single layer, from 1-150th to 1-300th of an inch thick ; but its organization is very complex, for it contains the granulo-vascular basis with its close network of capillary blood-vessels and lymphatics. It cannot, therefore, be considered as produced by a mere dilatation of the common internal coat of the veins ; though, as will presently appear, the veins of the spleen present characters exactly analogous to those of the vesicles.

"2. *Blood-vessels.* These, according to the form, size, and distribution, may be described in three sets : 1, the large trunks or splenic vessels, commonly so called ; 2, the intervesicular vessels ; 3, the vesicular vessels. The *splenic vessels* pass, artery and vein together dividing, three or four times, towards the periphery of the spleen. The veins are perforated by small, circular holes, which lead to the veins of the partitions or intervascular veins.

"The terminal veins are decomposed, in the course of their canal, into a succession of cellules, separated by vascular constrictions, of which the organic composition is absolutely identical with that of the vesicles which succeed to them. The *intervesicular vessels,* arising from the preceding, run in the partitions, where they are distributed to the splenic glands and the vesicular membranes. In man they have a diameter of about 1-500th of an inch. The vessels of the glands pass abruptly into them, like those of the corpus cavernosum. The *vesicular veins* form those little folds on the surface of the small cavities which have been already mentioned. But, by a singular arrangement, their branches project into the vesicular cavity, to distribute themselves to the floating corpuscles which are appended to their ultimate branches, like a bunch of grapes, according to the comparison of Malpighi. On the basis of the membrane the last capillaries form, with the lymphatics, the granulo-vascular network. As to the venules, there are two kinds of them : those of the common capillary network, and the *absorbent venules,* which are much larger and which are seen to open by free orifices in the cavities of the vesicles. Lastly, all the small vessels of the spleen, the intervesicular as well as the vesicular, are distinguished, when turgid, by continuous series of dilatations and constrictions, which give them a remarkably knotted aspect.

3. *Floating vascular corpuscles.* These float within the vesicle, appended, as in pedicles, to the last branches of the capillary blood-vessels, and lymphatics. They are formed of a lenticular nucleus, from which, when they are turgid, there project the stems of little aigrettes, radiating towards the circumference, so as to resemble the flower of an umbelliferous plant. These aigrettes themselves are composed of a filament, terminated by brilliant little spherules, collected in the form of a chaplet. The corpuscular nuclei have, in the calf, a diameter of from 1-350th to 1-50th of an inch, and their capillaries are from 1-1200th to 1-2500th of an inch in diameter. In man the corpuscles are from 1-500th to 2-150th of an inch in diameter, and the capillaries which pass to or from them have a calibre varying from 1-800th to 1-500th of an inch.

"4. *Granulo capillary basis* is the name given by M. Bourgery, on account of its aspect, to the membrane of the vesicles, which is itself composed of two elements; 1st, spherical granules, which are very pale, juxtaposed, and from 1-800th to 1-600th of an inch in diameter; and 2dly, arterial, venous, and lymphatic capillaries, varying from 1-9500th or 1-500th or 1-7000th of an inch in diameter, distinct from the larger capillaries of the floating corpuscles. The vascular net forms a lacework several layers thick.

"5. *Splenic liquid.* This liquid or *splenic blood* appears to be the product of an elaboration by the floating corpuscles and the granulo-capillary basis, which is deposited in the cavities of the vesicles, and is taken up again by the absorbent vessels of their walls. It is thick, viscid, and brownish red; and, under the microscope, seems to be composed of several kinds of globules suspended in a yellowish, unctuous liquid; especially of—1st, *lenticular* globules, some of which are surrounded by a red limbus, and do not appear to differ from ordinary blood-globules, while others are colourless; and 2ndly, whitish globules, irregular in form and size, which remind one of those found in the chyle and lymph.

"6. *Splenic glands.* The preceding parts compose the vesicular portion of the spleen, the two next form its glandular apparatus. These glands consitute, in respect of volume and consistence, the most considerable organic element of the spleen. United by cords of the same substance, they fill up, with the ramifications of the vessels, the intervesicular partitions or spaces. Their greatest diameter, when in a state of repletion, is, in the calf, about 1-25th of an inch, in man about 1-100th. In the ox they are as much as 1-12th of an inch, or more, in diameter, and one can see them with the naked eye, in the form of brown or whitish corpuscles. It is these which most authors have regarded as the vesicular glandules of Malpighi. They are isolated or agglomerated in the intervesicular spaces, and are united by cords into chaplets which extend through every part of the spleen. They receive a great number of capillaries, and a thin layer of their substance well injected seems to resolve itself into infinitely small granules and capillaries.

"The relation which the lymphatic vessels bear to these glands, shows their physiological import. One sees plexuses of lymphatic vessels interlaced on their surface, afferent trunks penetrating them and their connecting cords, efferent trunks leaving them and proceeding to the intervesicular blood-vessels, and infinite subdivisions of the minute lymphatics in the interior of both them and their cords. So that there can be no doubt that these splenic glands are merely microscopic lymphatic glands.

"7. *Lymphatic vessels.* These exist in immense numbers in the spleen. Arising from the granulo-capillary network, in which they form the very closest lacework, they join to themselves the branches from the floating corpuscles, and with these they pass to the intervesicular glands. There are from fifteen to twenty of their larger branches on each vesicle, and the form of these is peculiar. Externally each large branch is surrounded by numerous interlacing small ones, just as the blood-vessels of the digestive organs are surrounded by lymphatics of larger size. And internally, besides possessing very distinct valves, they are divided into loculi, the agglomeration of which at their junctions gives the notion of a kind of rudimental gland : as if the lymphatic vessels were not merely canals of transport but organs of elaboration." On the remaining three elements (says the reviewer) M. Bourgery offers no peculiar remarks. Neither does he give any definite explanation of his view of the office of the spleen ; he only calls it "*a vast lymphatico-sanguine gland, regarding the veins and the vesicles as apparatus for the elaboration of blood,* and the glands and their connecting cord as one great lymphatic gland, broken up into microscopic glands, united by cords of the same substance that it may extend itself through every part of the spleen, and every where surround the vesicles."

Pathological Preparations.

(Continued from page 67.)

Nos. SPLEEN.

556. *An enormously enlarged spleen taken from a patient suffering from what is called spleen disease with intermittent fever.* The organ is somewhat larger than an ordinary sized liver, and has a division into two lobes. Its peritoneal covering is marked here and there with patches of lymph, and the peripheral structure of the organ beneath the investing membrane, is for an extent varying from one to two inches, very much condensed like liver. An irregular formation of cells then succeeds, utterly dissimilar to any thing else in the body, they appear to be lined by mucous membranes and to have innumerable openings and septa,—in size they vary from a millet seed to a pea or bean.

The centre of the organ is occupied by a tissue of loose and flocculent capillary vessels, floating like moss and resting upon irregular loops about as thick as a hair. There is sometimes seen a square looking body which sends out single ramules or pencils of capillaries, having the appearance of thistle-down, but I have never seen these project into the cells. This central body seems ready to float away by means of the bunches of capillaries attached to it. All this part of the organ resembles the minute structure of the macerated liver, No. 656, but for the much greater minuteness of vessels, and the singular arrangement of the cells, exactly resembling those seen in the lung of the turtle. (No. 389.)

Nos.

649. *Spleen ruptured from suppuration.* The spleen has undergone inflammation, an abscess formed in the centre, the rupture is surrounded by deposit of lymph. The organ is enlarged about three times, and exhibits the same structure as the last. The cells fewer, the capillaries less seen for the congestion of blood is excessive, and the organ readily broke up under the fingers. (*See cases.*)

680. *The spleen is enlarged* three times, covered with a semi-cartilaginous investment. Its section has much the same regularity of structure as liver, without cells or capillaries hanging in a flocculent manner.

653. *Enlarged spleen* with a more loose structure internally than the last preparation ; it appears to induce the sloughing state of the genital organs as seen in preparation, No. 675. They were both taken from the same case, a native girl.

647. *A spleen in one part invested with a thick layer of cartilaginous deposit.* The organ is not enlarged. This deposit of cartilage is most abundant over a cavity which exists at the upper part of the organ, and which is, when distended, as large as an orange. It is probably the site of an old abscess, whilst the strengthening of the walls with this thick cartilaginous investment, (3 or 4 lines) prevented its rupture.

342. *Tuberculated spleen of the Ourang-Outang.*

840. *A spleen enlarged about four times.* The distension of the splenic cells is very remarkable, giving it the appearance of sponge. They were filled with a brown oily fluid. Opposite the external effusion of lymph, there is great softening and confusion of substance. A patch of lymph is seen effused upon its lower surface—by which it is glued to the pancreas and duodenum—from an European girl who died of spleen disease, producing every symptom of scurvy. (See case No. 840, p. 152.)

—— Also in connexion with spleen disease. (See No. 653.)

675. Sloughing of the labia and pubis.

832. Sloughing of the cheek, which is perforated as completely as if it had been done by a musket ball ; the teeth laid bare to the ramus of the jaw. From a native girl.

—— Cancrum—oris (drawing.) This sketch was taken from a horrible case of sloughing, in an European girl, aged 19—who had submitted, in despair of relief from European doctors, to the treatment of a Native doctor, who gave her mercury.

CASES IN ILLUSTRATION OF SPLEEN PREPARATIONS.

CASE OF EXCISED SPLEEN.—*By J. Chapman, Esq.*

I have the pleasure to send herewith a portion of the spleen of a native, excised by my friend Dr. McDonnel of Purneah; and on his part, beg to present it for acceptance to the Society, for their museum.*

The subject of this case is a stout and healthy man of about 30 years of age, who was gored by a buffalo in the Morung forest, which produced a horizontal wound of about two inches in length, through which the spleen protruded, and remained in that state for six days, when the patient, to seek medical relief, rode into the station, a distance of 14 koss, and put himself under the doctor's care. A ligature was in the first instance applied, with the view of interrupting the circulation, and thereby removing the mass; but on further consideration, he determined to excise the protruded viscus, which being done, the ligatures applied to two bleeding vessels, with simple dressing, and put in the horizontal posture the case rapidly recovered.

It is now two months since the operation was performed, and the man as yet enjoys his usual health.†

ABSTRACT OF CASES OF RUPTURE OF THE SPLEEN.—(ILLUSTRATING No. 649.)

By Messrs Leckie, Greig, and Hutchinson, of the Bengal Medical Service.

Mr. Leckie's case of rupture of the spleen‡ occurred in a corporal of Artillery, 34 years of age. The man had been discharged on the 6th of January, cured of an obstinate intermittent: he was re-admitted on the 21st of the same month, after hard drinking, complaining of acute pain diffused over the whole of the abdomen, with which he had been seized during the night. The belly was tender on pressure, full, and round; countenance anxious; breathing quick and short; pulse 130, small, and weak; tongue white and dry; skin cool; bowels open. He was bled to twelve ounces, fomentations were applied, and the bowels attended to, which they continued to be throughout the case. At 1 P. M. he was reported to be in the hot stage of fever, which commenced with rigors at 11. Eighteen leeches were applied; and tenderness of the abdomen continuing, they were repeated the following day. On the 23rd, he experienced slight pain on pressure along the course of the colon, for which eight leeches were applied. Shortly after the morning visit, he was seized with severe rigors, followed by a hot and a sweating stage. The pain was completely relieved by the leeches, and the gums had become slightly sore. On the 24th, 25th, and 26th, he is reported to be free from pain and complaint. About midnight of the last, however, he was seized with excruciating pain in the left side; which soon became diffused over the whole abdomen; and he could not bear the slightest pressure over the region first indicated. The head, thorax, and extremities became cold; the pulse scarcely perceptible; and in three-quarters of an hour the man died. On dissection, forty-six fluid ounces of blood, were found in the cavity of the peritoneum. A large coagulated mass occupied the left hypochondrium, and communicated with a rupture in the under surface of the spleen where the vessels enter. When this clot was removed, spleen was found not to be enlarged. The peritoneum over the small intestines was slightly opaque. Mr. Leckie has since heard it reported, that this man received a severe fall, on his left side, the day before his admission into hospital.

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* This preparation is lost.

† Sir C. Bell relates a similar case—" An old pupil has lately given me an account of his cutting off the spleen in a native of South America. The spleen escaping from the wound had become gangrenous. He could observe no effect to result from the extirpation," see p. 352. (Anat. et Phys. by J. and C. Bell, 4th edition.)

Another very interesting case of excision of the spleen, in which the woman lived five years, is cited by Morgagni from Fontanus. It effectually refutes the absurd notion of Verheyen that the spleen was of " some use in the work of generation."—The experiments of Heister and Vallesnerius upon bitches were instituted to determine this point (Heister's Observations, p. 389.) Boerhaave also, seems to have entertained this notion. He says (in his Institutiones Medicæ, Leyden, 1734)—" Cur ablato liene, animal solito salacius, et quamdiu." (p. 175.)

EXCISION OF THE SPLEEN IN A WOMAN.

" In that admirable case also, which you will read of in the very excellent Fontanus who would have supposed, that, in an abscess opened at the navel, the spleen lay hid? It was only the most slight conjecture, that could be drawn from those very violent pains, of which the patient had complained; and especially below the left hypochondrium. Yet the spleen had fallen down to the navel, from whence it was not only extracted at that time, but the woman having died five years after this extraction; and having conceived and brought forth in the mean time; lest any one should doubt of the extraction of this viscus, no spleen was found in any part of the body upon dissection; " only cicatrices appeared in the neighbouring parts, to which it is wont naturally to adhere."

‡ Trans. Med. & Phys. Soc. Calcutta, Appendix to Trans. Vol. VIII.

The subject of Mr. Greig's case was a Sepoy, 45 years of age. He was admitted into hospital at 9 o'clock P. M. of the 7th October, with intermittent fever, which went off in the course of the night, leaving only slight head-ache. On the morning of the 8th, leeches were applied to the head, and a purgative administered, which gave him great relief. In the evening, he said, he felt quite well, and had a little calomel and antimonial powder at bed-time. Next morning, he declared there was nothing the matter with him, walked to the lines, ate some dinner, and returned to the hospital before 10 o'clock A. M. At 11, he was seized with the cold fit of an intermittent fever, during which he died. On opening the abdomen, a considerable quantity of dark-colored blood was discovered; which was found to have proceeded from numerous openings, in the substance of the spleen. This viscus was completely disorganized; very much enlarged, and so softened throughout, as scarcely to bear the gentlest handling, without breaking. Its color was that of chocolate. Mr. Greig states, that this man's previous health was good, and that at no period did he complain of pain or uneasiness in the left hypochondrium.

The subject of Mr. Hutchinson's dissection was a native about 25 years of age; who appeared to have enjoyed excellent health previous to the accident, which proved fatal. The body was brought for examination, within half an hour after the man's death, and was then still warm. The inspection was postponed in consequence for some hours. On opening the abdomen, it was found filled with fluid blood, which was traced to have proceeded from a rent in the under surface of the spleen. This had been occasioned by a blow, the man had received on the left hypochondrium, with a small piece of brick-bat, which had been thrown at him; but with so little force, that it had left neither discoloration nor abrasion of the surface.*

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* See Hullers,

His death, as far as could be learned, almost immediately followed the blow. The spleen could scarcely be said to be enlarged.

CASES ILLUSTRATIVE OF SPLEEN DISEASE.

PAIN AND SWELLING OF THE SPLEEN, IN INTERMITTENT FEVER.

(*By Allan Webb, Esq.*)

Sarah F., aged 18, admitted December 19, has had intermittent fever three weeks. No medical treatment. States, that shivering begins at evening, lasts an hour, succeeded by a hot fit, which lasts till morning; when she wakes in profuse sweat.

Dec. 20th, 5 p. m. Accession earlier to-day. (At this time.) Whole body is trembling, features shrunk, brows contracted, skin hot, though she herself experiences a sensation of intense cold; heart's action laboured; great impulse given to the hand. Pulse small, scarcely distinguished, 116. Respiration hurried, hard. Has pain under margin of ribs, on both sides; particularly the left, where the spleen is felt enlarged.

V. S. ad ℥ vj. stat. — 9 *p. m.—Hot stage,*—face flushed, lips dry, skin hot. Pulse 120, full, has head-ache and pain on full inspiration. Respiration 32. *Spleen felt enlarged, painful on pressure.*

21st. — 11 *a. m. Apyrexia.* Is now pale, pulse 43; tongue pale; bowels open.

22nd. Quin. Sulph. gr. ij. Ant. Horror. sum. — Cold fit lasted two hours, hot fit worse to-day.
3 *p. m.*—Rigor now coming on, take Tinct. Op. ʒss.
11 *p. m.*—Less of hot fit. Is more comfortable.
Complains of load and oppression at chest.

24th. Haust. Emetic. Zinci Sulph. — 3 *p. m.*—Believes accession is now coming on.
No febrile accession to-day.

25th. Pil. Aper. — No return of fever since she took the Emetic; pulse 72; bowels confined.

28th. — Convalescent. Full diet.

30th. — Left Hospital cured.

Remarks.—Bleeding in cold stage, opium before accession, as well as quinine;—all of no use. Cured by emetic of sulphate of zinc. This case is also remarkable, on account of the indication, it afforded, of congestion of the spleen, during the attack.

ANASARCA AND ENLARGED SPLEEN, TREATED WITH MERCURY.

(*By Allan Webb, Esq.*)

Patrick Mitchell, aged 7, has had several attacks of ague, whole body anasarcous, especially legs and abdomen. Spleen much enlarged.

Dec. 4th. Haust. Emetic. Stat. Quin. Sulph. gr. ij. 4tis. horis. sum. — Has accession this morning; pulse 106, great thirst, slight cough, appetite bad.

5th.	Another accession at 12 A. M.; no sweating.
7th.	No shivering to-day.
10th. V. S. ad ℥ vj. Digit. P. gr. i. Scillæ. P. gr. ij. Cal. gr. i. terdie.	Feet, thighs, scrotum, abdomen, amazingly distended. Respiration difficult. Pain on inspiration; diarrhœa, tongue furred.
16th.	Slight improvement. Has continued pills.
17th.	Abdomen sinking, pulse small, feeble; mouth sore.
20th. Omit Pills. Wine ℥ iij. Pulv. Cinch. Pulv. Kino. C. ā ℈ss. 3tis horis.	Anasarca is nearly gone, spleen felt much enlarged, extends far below the ribs on the left side; bowels relaxed; pulse 120, thready, feels very weak.
23d.	Is now much emaciated, bowels relaxed.
31st. Mist. Cret. Conf. Arom. Tinct. Opii.	Face very anxious. Emaciation extreme, appetite voracious, food passes undigested. (*Lientery.*)
Inject. Amyl.	Looks cadaverous, stools passed involuntarily, stomach rejects every thing; pulse 120, thready.
Jany. 2.	*Died.* Body not examined.

REMARKS.—Calomel was here given to salivation, but no sphacelus followed.

INFLAMMATORY CONGESTION OF THE SPLEEN IN FEVER.

(*By W. H. B. Ross, Esq. Asst. Surgeon Lt. Wing* 3d *Bt. Artillery.—Favored by the Medical Board of Bengal.*)

Gunner William Farbuck, aged 28, 4th Company, 3rd Battalion, Artillery; admitted 22nd June, 1843.

June 22d. Hydr. Sub. gr. v. Ext. Col. Co. gr. vij. Camboj. gr. ½. P. Scam. Co. gr. iij. M "now." Pulv. Rhei. C. ʒj. Aq. Menth. pip. ℥ij. "two hours after."	Admitted complaining of relaxed bowels, accompanied by griping, which has existed for the last two days; a consequence of previous constipation.
Vesp. Haust. Anodyn. h. ss.	Has been freely purged, and is free from pain, but weak.
23rd.	Convalescent. Nihil.
24th. Pil. purg. ij. "now" and rep. in 2 hours.	Tongue foul, feels weak, appetite impaired, bowels confined.

25th.
Nihil.

Free from complaint.

Vesp. 9 p. m.

This man was to have been discharged to-morrow morning; at the evening visit, he was quite free from complaint, his bowels had been three times moved; the tongue was clean and the skin cool. I had occasion to visit the hospital about 9 P. M., when I find he has had a severe paroxysm of fever, which has run its course, and the skin is now bathed in perspiration; pulse frequent and small; tongue clean; bowels once moved since the evening visit, motion of a dark yellow color and of some consistence; countenance anxious; respiration hurried, and he sighs and yawns frequently, and answers questions with a trembling voice. He gave no one any warning, and it was when the apothecary was passing along the ward about 8 o'clock, that he observed the peculiarly anxious expression of his countenance.

16th.
Mist. Sennæ. ℥iv. now.

Perfectly free from fever, and complains of no pain whatever, has had three copious feculent stools in the night of a dark brown color; pulse tranquil, tongue white.

Vesp.
Quinæ. Sulph. gr. iij. "every second hour."

The skin is warm this evening, but moist; bowels four times moved; stools watery and of a dark brown color; tongue white.

17th.
"Repeat the pills at bed time."
V. S. ad ℥xvi.
Calomel. gr. xiv. & Ant. Tart. gr. ¼. afterwards.
Ol. Ricini ʒi. Aq. M. Pip. ℥ iss. at midday.

The skin is dry and hot, complains of pain in the forehead, which attacked him in the night for the first time; stomach irritable, but he has not vomited; tongue dry; pulse 120, sharp; bowels three times moved in the night, motions fluid, feculent, and of a dark brown color; countenance anxious, color sallow.

Vesp.
xij. leeches to the temples.
Pil. purg. ij. "now," with Ant. Tart g. ¼. Repeated in 2 hours if necessary.
Enema Domest. "now," a blister to the neck.
Calomel gr. v. Pulv. Ant. gr. iij. every 3d hour.

Blood drawn, neither cupped nor buffed; pain in the head continues; had an accession of fever at 1 P. M., which was preceded by a rigor; pulse 120, small and feeble; tongue dry. There is considerable fulness about the epigastrium; countenance anxious and depressed; eyes dull and heavy.

28th.
Ol. Ricini ℥ss.
Spt. Terebinth ʒj.
Aq. M. Pip. ℥ss.
Mucil. Acaciæ ℥ss now.
Quin. Sulph. gr. iij every 2d hour.

Passed a very uncomfortable night being restless, not able to sleep; the skin was hot and dry, till about 4 A. M. when it became cold, and clammy. It is at present cool and moist; pulse scarcely perceptible at the wrist, and extremely rapid; tongue moist; eyes dull and sunk in their orbits; pupils contracted; bowels opened eight times; motions of a dark colour and feculent.

Merid.
Poultices, of Europe mustard, to the epigastrium and calves of the leg, warm sand bags to hands and feet.

Became exceedingly weak and exhausted soon after the morning visit; pulse small, rapid and indistinct; skin cold and clammy; tongue dry; features collapsed and anxious; eyes sunk in their orbits; respiration hurried and abdominal; has had five copious watery grass-green coloured motions, mixed with mucus.

Vesp.
Calom. gr. iij.
P. Ipecac. gss.
Pulv. Ant. gss.
M. every third hour.

No improvement, and appears to be rapidly sinking; pulse imperceptible, tongue dry; skin cold and clammy; respiration hurried and anxious; features shrunk and sharp; pupils of the eyes dilated.

A cordial draught p. r. n.

Expired at half-past 6 P. M.

Autopsy.

The body was examined eleven hours after death.

External Appearances.—The body is thin but muscular.

Head.—The brain and its tunic were gorged with blood; the small arterial vessels of the pia mater, were finely injected with red blood. Upon laying open the lateral ventricles, a small quantity of serum was found, and also at the base of the brain below the tentorium. The substance of the brain and cerebellum was firm, and bled a little when cut.

Chest.—The lungs were pale and nearly destitute of blood; the heart was also pale and flaccid, and no blood existed, either on the right or left side of the organ.

Abdomen.—The stomach and small intestines were remarkably healthy and of a fine pale color. The large intestines were also normal, except the ascending colon, which was congested with dark blood, producing a pale purple color. The *liver* was gorged with blood, and weighed 7 lbs.; its substance was soft, and bled freely when cut into by the scalpel. The gall-bladder was filled with green bile, and the common duct was pervious. The *spleen* was also considerably gorged with blood, and weighed 1½ lbs.; the substance was soft. When cut, and afterwards pressed, a thick gummous blood, nearly as thick and black as tar, exuded. The other viscera not already mentioned, were healthy.

REMARKS.—This interesting case of Mr. Ross's is very valuable—from his having shewn in this careful manner the morbid relations of these great organs of sanguifaction, the liver and spleen, in the fatal fevers of Bengal.

CICATRIX IN SPLEEN—INTERMITTENT FEVER—ASTHENIC DYSENTERY, (LIENTERY.)

(By J. Sutherland, Esq., Asst. Surgeon.—Favored by the Medical Board of Bengal.)

Nov. 9th.
Quinine 3 grs. "every three hours."

Private Lawrence Collins, 1st European Light Infantry, aged 22 years. Was admitted from the 1st European, into the Depôt hospital; has no pain; pulse puick, weak and com-

	pressible; tongue furred; has had fever several times this season, no history of his illness accompanied him—is cool, bowels free.
10th. Sulph. Quinine. to be repeated.	This is a weak pale emaciated patient; has no pain; fever preceded by rigor, returns every evening at 7; pulse quick, weak: bowels free; tongue dry, red.
11th. Calomel 3 grs. Ex. Colocynth. Co. 6grs. "now." Appl. Emplas. Lyttœ Hypoch. Dext.	Had a very severe rigor last night which lasted a considerable time, is very low; pulse 98, weak; tongue foul, has tenderness in the region of the liver; bowels are not free.
Vesp. Quinine 4 grs. at 3, 4 and 5 P. M. Mist. Purg. ℥iij. "now."	Bowels free; blister rose well; has no pain. Tongue foul; skin natural temperature.
12th. Quinine 3 grs. every 3 hours. Pil. purg. at noon.	Had a rigor at 7 P. M.; is now much exhausted with a quick feeble pulse; tongue loaded with a white fur. Bowels moved once, motion thin, feculent.
Vesp. Quinine 5 grs. at 6 P. M.	Bowels moved once freely; has no pain; skin cold and moist; tongue furred; is weak to an excessive degree.
13th. Quinine 3 grs. every 3 hours.	Had no decided pyrexia in the night, but is very pale, weak and apparently exhausted; thirst urgent; tongue foul; bowels moved twice, motions liquid.
Vesp. P. Ipecac. gr. 2. Quinine 3 grs. every 3 hours.	Has been purged frequently during the day; tongue furred; is cool; pulse calm.
14th. Cont. Sulph. Quin TincCatechu℥ss. T.Opii.gt. xxxv. ex. Mist. Acac. "now" and at noon.	Went out to stool and fainted; is now recovering from a state of collapse; pulse 110, feeble; tongue white; belly tympanitic; makes no complaint of pain; countenance wild and anxious; bowels relaxed; pupils rather dilated and sluggish; stools thin, brownish.
9 A. M. Liq. Lyttœ Capit. Wine ½ meas. in Sago every three hours.	Stupor with a stertorous breathing has come on, pulse 120: is sinking.
	Died at ½ past 9 A. M.

Examination six hours after death.

Subject emaciated to a great degree.

Head.—There was morbid vascularity of the membranes, and some serum effused at the base of the brain.

Chest.—The pericardium contained upwards of ℥iij. of serum; but there was no other morbid appearance.

Abdomen.—On opening the abdomen about 1 ℔ of serous fluid flowed, but on turning the subject, the liver was greatly enlarged, of a slate colour. The gall-bladder contained a little light-coloured bile. *Spleen*—enlarged, of the same colour externally as the liver; with an old *cicatrix on its surface. Externally,* the small intestines were highly injected and coated with patches of lymph in a few places,—producing slight adhesions. Much serous fluid was effused between the layers of the mesentery, mesocolon and mesorectum. The mucous coat of the stomach and the whole of the intestines were without any trace of morbid vascularity.

REMARKS.—I have given this case of Mr. Sutherland's as shewing that even in such cases of uncontrollable fever, the spleen suffers equally with the liver—whilst the "*cicatrix*" and emaciation shew that the man had suffered from splenic abscess.

ABSCESS OF SPLEEN BURSTING INTO THE INTESTINES, WITH RECOVERY OF THE PATIENT.

(*By Allan Webb, Esq.*)

November 2d, 1842. " Spleen mixture " of Twining. 3 Leeches every 2nd day to the spleen.	Matilda D.—Æt. 15, was admitted into hospital with fever and " spleen disease." Has a greatly enlarged spleen, reaching down into the left iliac fossa, and Poupert's ligament ; and across to the umbilicus. Was admitted, a year ago, with remittent fever ; was in hospital for two months. She now looks pale, has œdema of face, and eyelids, dry skin, has fever at night. Has had no menstrual evacuation.
4th. Pt.	Had no fever. Same state.
10th. Pt.	To attend as an out-patient, and have leeches every other day to the region of the spleen.
December 11th.	Readmitted with fever, spleen soft, does not extend so low down.
19th. Ferri Sulph. gr. iij. Mag. Sulph. ʒj. Quinin. Sulph. gr. ii. Ex. Mist. Camph. bis in die sum. Ung. Hydriod. Potass. " to be rubbed on spleen."	*Reduced about one half.*
February 1st, 1843.	Sent on a visit to Dum-Dum, spleen softer, and smaller.
26th. A blister to be kept open over the spleen.	Returned from visit in same state. The spleen is again reduced in size one-half, there is red blood seen in the palpebral conjunctiva again. Face does not swell now, but she has cough, and bad spirits.
March 14th.	Recommended for change of air again to live at Dum-Dum.
April 26th. Leeches vi. Rept. Mist.	Readmitted ; spleen much enlarged, she looks better however in face.
May 5th. Compression with a flannel bandage.	Same state. Mixture produces two or three stools daily. Last few days had fever at night, with restlessness, inability to walk out as usual.
31st.	At 4 o'clock in the evening, severe pain in the stomach, and spleen, came on ; followed by purging of white matter (pus,) cold clammy sweats, &c. The pain was relieved by hot bottles applied to the stomach

and fomentations; internally she took Tinct. Chol. ʒss. to three doses.

Bandage of flannel round the abdomen.
Chicken broth.
Chyretta mixture.

She had 14 stools, at first pure pus, but latterly more feculent. But still the pus of good quality is distinctly seen; *the spleen reduced to a size apparently natural.* Pulse feeble; skin warm.

June 2d.

Is sitting up, doing well, four yellow stools, slept well. She had in August quite recovered her good looks, and is gone up the country to be married.

SPLENITIS—ANASARCA—SPLENIC ABSCESS—LYENTERY—SPLENIC SCURVY—EPISTAXES AND DYSENTERY. ASPHYXIA AND DEATH FROM PRESSURE OF A WORM ON THE GLOTTIS.

(*By Allan Webb, Esq.*)

Catherine Charlton, an European girl, aged 12, admitted into hospital with intermittent fever, November 1843—was discharged convalescent in ten days.

January 5th.
Leeches vi.
Spleen mixture of aloes, vinegar, garlic, &c.

4th January 1844. *Readmitted* with fever, and enlarged spleen: looks pale, but not in the face.

Feb. 25th.
Leeches vi.
Twining's Spleen Mixture, with Quin. gr. i. ter die.

Has daily low feverish attacks during the last three days. Spleen is felt hard and projecting below the ribs. Skin dry, loose, and pale. Bowels moved twice daily.

March 10th.
Pt.
A blister, kept open.

Spleen decreasing.

13th.
℞ Pulv. Zingib. Sodæ Carb. ā gr. v. Ferri Carb. ʒj. ft. Pulv. ter in die sumend.

The girl has a most miserable appearance from spleen disease. Face bloated, has a lemon tinge, palpebral conjunctiva of the eyes, is pale and blanched. Inside of the lips has the same bloodless aspect; hair harsh, and dry; skin hanging wrinkled and loose on her emaciated body. Has no spirits, being dull and heavy, without appetite. Feet anasarcous. Pulse quick, skin of body has a dry hot feel; ears are cold; she has lately had four or five stools a day with very offensive smell from the use of spleen mixture.

16th.
Pt.

The spleen felt very soft, and very near to the skin. The weakness and emaciation continues; face exceedingly bloated. (This day seen with Dr. Johnstone)—no stool in the night, only one in the day.

17th.
Pt.

Much the same state, perhaps less swelling of the feet; spleen is felt large and soft, no stool in the night.

18th.
Pt.
Flannel bandage.

Has had five stools to-day without much pain, they are yellowish, mattery and streaked with blood, mixed with the dark secretions of the ferri carb. *The spleen has dis-*

appeared; she feels very weak, but easier, and the legs are swelled.

19th.
Diet—chicken boiled, and soup.
Omit Ferri Carb.

Had about three stools in the night, with considerable quantity of purulent fluid, mixed with the dark secretions, resulting from the ferri carb.

20th.
Pt.
Flannel bandage to abdomen.

Passed some dark watery stools. Those passed in the night are natural, excepting the presence of a little pus. Swelling of face, and ankles less; spirits much better.

22d.
Pt.

The girl is still very weak and the spleen can be felt again; it is very small, however. Belly somewhat tumid, ears cold, palpebral conjunctiva more red.

25th.
Laudanum ʒss. at bed time.

Had another attack of pain last night, referred to the region of the spleen; followed by two or three small stools purulent and bloody—no pain to-day; no spleen to be felt.

26th.
Sulphur. P. Mag. Carb. ā ʒj. "now."
Warm bath.
Laudanum gtt. xx. at bed time.

Passed three or four offensive loose stools, mixed with bloody pus.

No pain on pressure over the abdomen; child is pitiably weak, and miserably thin; skin excessively dry, hot towards the evening; pulse quick and sharp.

29th.
Had Laudanum gtt. xx. last night.

Much weaker, passes stools, bloody and purulent, involuntarily; is covered all over with petechiœ like spots in purpura.

31st.

Dark purple echimoses are abundant all over her body, especially where most exposed to pressure, as on the back and outside the thigh. But in other places like the spots in purpura. The tongue even has these echimoses beneath the mucous membrane, and is very red. Her hair is dry and thin. Her skin hangs in dry wrinkles like that of an old woman. Her gums are swelled, purple and spongy as in scurvy; there are ashy-looking—sloughy sores on each fold of both upper and lower lip. Her pulse quick and feeble; she slept last night, but up very often with distressing tenesmus and prolapsus of the gut, stools bloody water, and bloody clots.

April 1st.
Take fruit, as food and medicine, water-melons, papya and limejuice

Child looks better; less blood in stools; gums are swelled and bloody; often bleeds from the nose.

2nd.
Take wood-apple sherbet as drink.

Child is growing miserably weak, has bleeding from nose again, teeth loose; blood comes out from the swollen spongy gums, whenever she lies down; bloody stools and tenesmus. Tongue almost black.

4th.
Pt.

More bleeding from the mouth; often complains and cries out from the pains in the legs. Stools the last two days have been more natural and free from blood. The deep purple, of the spots on the skin, is much fainter now.

5th.

She is now too weak to rise; passes many stools, but no blood; sloughing in the mouth gets deeper, complains and cries with pain in all her bones. The blotches, and petechiœ are of more florid colour. Lies for hours half insensible.

6th. Much weaker, much more emaciated, cannot get up, all her evacuations passed under her.

7th. Gradually sinking.

8th. Died suddenly at 1 P. M. in a fit of coughing.

Post Mortem Examination four hours after, with Dr. Sprenger.

General Appearance.—Body exsanguous, covered with large purple blotches and weals.

Head contained very little blood ; brain generally pale ; no distinction between the white and cineritious portions, scarcely ; owing to its bloodless state. Ulcers in fauces on each side of the lower molar teeth, but not so deep as I expected.

Chest.—Here also the viscera presented the bloodless appearance of slaughtered animals. Lungs pale with partial patches of deep red color (echimose.) Heart small, diaphragm very thin, and pale ; a large worm was found in the pharynx pressing down the epiglottis, which was very red from irritation.

Abdomen.—Considerable effusion into the peritoneum, mixed with yellow flakes and watery purulent fluid, which had gravitated into the pelvis. Stomach pale, greatly attenuated, as were also the small intestines. There existed also an ulcerated, thickened, softened, echimosed state of the colon generally ; disease most intense opposite the *spleen* which was enlarged about four times ; adherent from inflammation, *but had no abscess.* A patch of whitish lymph effused on its external surface. Liver remarkably pale but healthy ; mesenteric glands very red.

REMARKS.—How did the spleen so rapidly decrease in a single night ? It seems to me probable that it had burst on the 18th; and that the matter pus and flakes in the pelvis had come from it. It had healed when the lymph was effused. The fact of its being felt immensely large, two days before the purulent purging came on, is known to my friend Dr. Sprenger who saw the case with me—that it could not be felt two days after is also known to him. —There may have been also a metastasis to the colon—such is not an uncommon attendant upon splenic suppurations.

SPHACELUS OF THE CHEEK.

(*By Allan Webb, Esq.*)

March 28th—Charles——ætat. 2.

Mother states, that the child after taking powders given for febrile symptoms, had copious salivation—its teeth fell out and a black spot appeared on its lower lip three days ago, which is now the size of a five-shilling piece. Upper lip and adjacent skin is now of a dusky red colour. Cutaneous veins in neck are swelled and injected—appearing like dark blue lines extending from the spot to the sternum—child's hands obliged to be tied to prevent him tearing off the lip. Inflammation seems extending down the mucous membranes. The child has cough. It moans piteously and is very restless.

29th.
Wine.
Carrot Poultice.

Gangrene extending on the left side, left eye closed, countenance more sunk and anxious. Child so restless, its head is not still a moment ; incessant thirst, cough frequent, pulse rapid, has diarrhœa ; fœtor intolerable. Died in the night.

Post Mortem Examination.

Head—nothing remarkable internally.

On cutting through lower lip and skin to sternum, the whole of the parts fell away from lower jaw as far as the angle, leaving it black, deprived of the periosteum, with a few teeth remaining nearly out of their sockets; slough extended to the root of the tongue as far as the insertion of Genio-Hyo-Glossus, where a white line of demarkation was seen. Stench intolerable.

No swelling nor redness of pharynx or tonsils—Epiglottis, round its edges presented vivid red appearance—Tracheal mucous membrane healthy.

Lungs seemed to have suffered from former pneumonia ; were solidified at base, upper part healthy, posterior gorged with blood, bronchial ramifications in some parts filled with mucus.

Abdomen.—Its contents quite healthy, no disease even of mesenteric glands, no enlargement of spleen.

Remarks.—This case shews that sphacelus of the cheek can occur after mercury, without spleen disease.

See a sketch of a similar case by Dr. Webb.

SPLENITIS, ANASARCA, ET ASCITES.

(*By W. H. B. Ross, Esq. Assist. Surg. in Medical Charge Lt. Wing 3rd Battalion Artillery.—Forwarded by the Medical Board.*)

℞. Spt. Ether Sulphur. ʒ ijss. Mist. Camph. ℥iss now ; and on reaction taking place. ℞. Calomel gr. v. Pulv. Jalap. gr. xv.	Gunner Michael Hart, æt. 28, 3rd comp. 3rd Batt. Artillery. Admitted 19th January 1843. A man of sallow complexion, and who has during his short residence in India suffered repeatedly from remittent fever and dysentery. Readmitted into Hospital in the cold stage of intermittent fever ; pulse small ; skin cold ; nails blue ; tongue white ; bowels confined.
Jan. 20th. ℞. Quinæ gr. v. " now " gr. iij. every 2 hours, with Acid. Sulp. dil. gtt. vj. and Mist. Camphor. ℥i.	Free from fever ; medicine acted four times ; motions copious, feculent, and slimy.
Vesp. Pil. Hydr. gr. v. Rhei. gr. xij. Ext. Jalap gr. v. M. " at bed time."	Had a paroxysm at ½ past 2 P. M. which lasted about an hour, and has now ran its course ; bowels not moved during the day ; pulse frequent, soft ; skin cool ; tongue clean. (He continued this plan and is reported convalescent on the 25th.)
30th. Infus. Chyret. ℥i. " Columb ℥ss. Acid. Vit. dil. gtt. vi. " 3 times a day."	Convalescent.

31st. Cont. Infus. Chyretta; ad. Potass Hydriod. gr. iij. to each dose: repeat the pills at bed time.	Slight fulness in the region of the spleen, but is free from pain even upon pressure; bowels open.
Feb. 1st. Apply to region of the spleen 6 leeches.	Bowels open; spleen in the same state as yesterday.
2nd. Apply 4 leeches. Cont. Chyretta, &c.	Much the same; skin warm; bowels open; enlargement of the spleen continued.
3rd. Rep. 4 leeches. Cont. Infus. Chyretta. Vesp. Mist. Splen. ℥i. twice a day. Omit the Chyretta.	Skin warm; tongue clean; pulse quick; bowels open.
4th. Cont. Mist.	Spleen diminished in size; bowels open.
Vesp. Pil. Rhei. gr. x. Hyd. gr. v. at bed time.	Had a severe paroxysm succeeded byextreme heat of skin, and quickness of pulse; bowels five times moved.
Feb. 5th. Cont. pills: add Calomel gr.i. at bed time. ℞. Acid. Vit. dil. gtt. viij. Infus. Chyret ℥i. M. "3 times a day."	Skin cool; pulse frequent; tongue clean; bowels open; complains of no pain; abdomen tumid and tympanitic; body considerably emaciated.
8th Feb. Vesp. P.Doveri. gr.xiv. Rhei. gr. xij. M. "at bed time.'	Has had no return of fever; bowels four times moved, stools mixed with mucus, but were passed without pain.
9th. Mag. Sulph. ʒiv. Carbon ʒss. Acid. sulph. dil. gtt. xx. Aq. bull ℥iss. M. "now." Cont. Quinine every 2nd hour.	Four stools of a light yellow color; skin warm; pulse less frequent; tongue clean.
Vesp. Pil.Rhei.Co.gr.v. —Hydr. gr. v. Ant. Tart. q. p. M. "now;" rep. Anodyne at bed time.	Complains of great debility and exhaustion; skin moist but hot; pulse frequent; tongue clean; abdomen tumid; tumefaction of the spleen completely gone.

10th. Pulv. Ipecac. gr. ij. Pil. Hydr. gr. iv. Ext. Gent. gr. v. M. "every hour." Cont. the Quin.	Slept none in the night; skin at present cool; tongue clean; pulse moderate; had two light-colored stools, mixed with mucus.
Vesp. Rept. Pil. Rhei. Co. at bed time and Anodyne.	No return of fever; six stools of the same character; pulse frequent; tongue clean: abdomen less tumid.
11th. Appl. Hirud. iv. Ol. Ricini. ʒ vij. Tinc. Hyoscy. ʒi. Aq. Menth. Pip. ℥ iss. "now." Ant. Tart. gr. iss. Aq. ℥ viij. M. ℥ i. every 2d hour.	Had a severe paroxysm of fever in the night without the cold stage; skin still hot; pulse frequent; tongue clean; bowels 5 times moved, stools consist of imperfectly digested food mixed with slime; complains of slight tenderness on pressure over the left hypochondrium. (P. Myrrhœ gr. vi. P. Dov. gr. xiii. had been given three times daily.)
Vesp.	Appears much exhausted and depressed; skin cool; pulse slow; tongue dry; had eight copious fluid motions, of a bright golden colour; pain in the side relieved by the retching.
Feb. 14th. Cont. Infusion Ipecac. & Gent.	Skin warm; pulse 80; tongue clean; two stools in the night, motions fluid, of a dark yellow colour, and free from blood or slime.
Vesp. Pulv. Doveri at bed time. Apply a blister to part affected.	Skin cool; pulse frequent; tongue clean; abdomen tumid; complains of slight pain on pressure over the left hypochondrium; four motions of a light yellow colour.
19th. Vesp. Nihil.	Has been feverish all day, feels weak and exhausted; bowels five times moved; motions of a light yellow color, and slimy; pulse feeble; skin moist; tongue clean.
20th. Mist. Splen. ℥ i. 3 times a day. Cont. Potass Iodide and Ipec. 3 times a day.	Passed a very restless night and continues feverish; had three motions of the same character; abdomen soft and doughy but less tumid, the blistered surface has prevented me from ascertaining the exact condition of the spleen for some time, but upon examination this morning I found it indurated and enlarged to some extent, but not the least painful upon pressure.
Vesp. P. Doveri gr. xij. Aq. Menth ℥ iss. M. at bed time.	Skin warm; pulse frequent; had seven copious dark colored motions.
27th. Continue the medicine.	Slept none in the night, feels tired and exhausted; abdomen less tumid; spleen much diminished in size; had four stools; tongue of a dark color from the medicine; skin dry; pulse 80; tongue clean.
28th. Cont. remedies.	No change; had four stools in the night of the same kind.
March 1st. Ol. Ricini ʒvj.	Slept none, and in consequence feels oppressed and exhausted; has had five stools: no change in other respects.

2nd.
Pil. Scill. ʒss.
—Hydr. gr. x.
P. Digit. gr. viij.
—Ipecac gr. vj.
—Scam. C.gr. vj.
M. ft. Pil. iii.
Capt. i. ter die.

Slept none in the night ; there is slight œdema of the scrotum, face, and feet : tongue clean ; pulse frequent ; skin dry ; had one light colored motion since the evening visit ; urine natural, and large in quantity.

March 3rd.
Continue the pills every 3d hour.
Quin. Sulph. gr. iij.
Infus. Chyrett. ℥iss.
Acid Sulph. dil gtt.viij.M.three times a day.

Slept badly in the night ; œdema in all parts of the body mentioned yesterday, increased ; abdomen enlarged apparently more from the presence of flatus, than water ; had three copious feculent stools in the night of a dark brown color ; urine turbid and scanty.

Vesp.
Add Pil. Col. gr. v. to the pill at bed time.

Bowels twice moved, motions scanty and mixed with indigested food (potatoes), which the patient has taken surreptitiously ; pulse frequent and small ; skin dry ; tongue clean ; passed a large quantity of dark colored urine.

March 30th.
Ol. Ricini ʒ vij.
Aq. Menth. Pip. ℥iss. M. to be given now.

Slept little in the night ; was severely purged until eleven P. M. ; but had some rest after that hour, when he received an enema. Tongue dry ; skin warm ; pulse frequent ; had eight stools altogether which contain more feculence and less blood and slime.

Vesp.
P. Doveri gr.xvj.
Mist. Camph. ℥i.
M. to be given at bed time.

Was very easy all the forenoon ; bowels eight times moved, motions fluid, feculent and of a light yellow color, having a scum on the top which appears to be mucus tinged with blood. The blistered surface over the region of the spleen, is now so far healed, as to admit of an examination, and the spleen is felt much enlarged, indurated and painful to the touch.

31st.
Cont. the Dover's powder 3 times a day.

Slept pretty well ; had eight stools since the evening visit, consisting of a dark brown fluid interspersed with points of mucus tinged with blood. States that he is perfectly free from pain except when the spleen is pressed upon; pulse slow ; skin cool ; tongue clean.*

May 3rd.
Continue the pills.

Much the same, there is little change in the symptoms. For some time back the œdema comes and goes, and he has generally about eight stools in the twenty-four hours, motions feculent and of a dark yellow color, mixed with pieces of onion which he has taken without leave. Tongue clean ; pulse moderate ; skin cool and of a dingy yellow color.

May 6th. Vesp.
Tinct. Opii. gtt. lxx.
Acet. Plumb. gr.vj.

Not so well to-day ; rose eleven times to stool, motions exceedingly offensive but otherwise of a good color, and consistence ; the œdema of the extremities is extending up-

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* A whole month of very careful treatment is omitted in his abstract of Dr. Ross' case. Had the whole been given it would prove that nothing had been left untried. Pills of Digitalis gr. i. Scillœ gr. v. Ipecac. gr. ss. Ext. Gent. gr. iv.—were given three times a day from the 18th April.

Aquæ. ℥ iss. M. and make into an Enema now.

wards from the legs to the thighs ; abdomen tumid ; the spleen has receded beyond the ribs and can no longer be felt ; tongue moist ; pulse 80, feeble ; skin moist.

7th.
Rept. the Enema. Acet. Plumb. gr. x. Opii. gr. i. M. divide into four pills, one every 3d hour.

Three stools in the night of a yellow color, and some consistence ; œdema slightly diminished ; pulse moderate ; skin cool ; tongue clean ; slept well.

Vesp.
Repeat the Enema at bed-time.

Feels better this evening ; bowels only four times moved, motions feculent and of a dark color ; pulse calm ; tongue clean ; skin cool ; œdema much the same.

17th.
Continue the medicine.

Had seven stools in the night, motions of a healthy color and some consistence ; œdema, particularly of the scrotum much increased ; abdomen tumid and percussion elicits a dull sound higher than navel, when the body is in an upright position, evincing that ascites to some extent has taken place ; pulse 84 ; tongue clean and moist ; skin cool.

18th.
Continue the remedies.

Œdema of the abdomen, scrotum and lower extremities increased ; bowels eleven times moved during the night motions feculent, of dark color, and exceedingly offensive ; pulse 80 ; tongue clean ; skin cool.

Vesp.
Continue as before.

Much the same as in the morning ; has had seven stools, fluid, feculent and copious.

27th.
Cont. Pil. Cupri. Sulph. and repeat the mixture.

Œdema of the lower extremities and scrotum much increased, to such an extent as to prevent his raising himself out of bed ; the accumulation of water in the abdomen has also increased. Had six stools in the night of a dark yellow color. Tongue clean, but dry.

Vesp.
Cont. remedies.

Twelve stools during the day consisting of a dark yellow feculence ; no change since the morning.

28th.
Cont. medicine.

Rested remarkably well, and had only five stools since the evening visit ; in other respects the same.

Vesp.
Repeat the remedies.

Has passed an immense quantity of urine during the day of a dark color ; bowels eight times moved, motions the same as in the morning. Œdema much the same ; pulse 84, feeble ; skin cool ; tongue clean and moist.

29th.
Continue as above.

Bowels nineteen times moved during the night, motions fluid and of natural color ; the accumulation of water in the abdomen and the œdema of the lower extremities increasing.

Vesp.
Continue the medicine.

Œdema particularly of the left leg, increasing ; the accumulation of water in the abdomen has reached above the epigastrium ; seven stools of a dark yellow color ; pulse 90 ; tongue clean ; skin cool.

30th.
Continue as above.

Left lower extremity enormously swollen and the accumulation of water is gradually increasing. Had six stools during the night, very offensive, of a dark yellow color.

30th June. Vesp.
Liq.Morph.Acet. gtt. xi.
Vin.Ant.gtt.xxv.
Mist.Camph.℥iss.
M. at bed time.

No change since the morning ; bowels several times moved ; pulse 80, small and feeble ; tongue clean, but dry.

Paracentesis Abdom.

31st.

Bowels seven times moved, stools the same ; pulse 86 ; tongue white. The accumulation of water has gone on to such an extent as to impede the patient's respiration. I have therefore (after having held consultation with Surgeon Row of the 7th Battalion,) come to the conclusion that the abdomen should be punctured for the escape of the effused fluid. The situation, where the operation was performed was in the linea alba, about an inch below the umbilicus. The patient was placed on the edge of his bed with his back and legs supported, a flannel bandage ten inches broad, and long enough to surround the abdomen,and cross behind, was employed, leaving a sufficient hold for two assistants for the purpose of maintaining pressure when the water began to flow.

℞. Liq. Morph. Acet. ʒi.
Vin. Antim. ʒss.
Aq.Menth.Pip.℥i.
M. at bed time.

The instrument was pushed through the parietes of the abdomen until the point encountered no resistance. The trocar was then withdrawn and the canula at the same time insinuated a little farther, to prevent any chance of its escape during the flow of the fluid. When the cavity was emptied, the canula was withdrawn, and a piece of folded lint placed over the wound ; the ends of the bandage were then brought round and fastened in front, and the patient was then placed in bed. Thirteen pints of a clear fluid were obtained.

Vesp.
P. Doveri gr. xx.

Has been remarkably easy all day, and perfectly free from abdominal pain ; bowels eight times moved, stools of a dark yellow color ; pulse 90 ; skin warm ; tongue clean.

June 1st.
Sol. Tabac. gtt. L.
Aquæ. ℥i. M. 3 times a day.
Rep. the Dover's powder now.

Had eight stools during the night, of a dark yellow color and most offensive ; a large quantity of water has oozed through the opening made yesterday ; the abdomen is evidently diminished in size ; a particular examination was made with a view of endeavouring to ascertain if any enlargement of the liver or spleen existed, but the liver appears perfectly normal ; the spleen which was so much enlarged is nearly natural in size.

Vesp.

No change.

4th.
Cont. the Med. and add Sulph. Alumin ʒi. to the Enema.

Rose to stool every quarter of an hour during the night, motions feculent and mixed with a small quantity of bloody mucus. The abdomen continues small and the oozing from the wound has nearly ceased ; slight œdema of the left extremities from the knee downward continues.

Vesp. Pil. Hydr. gr. ij. opii. gr. iiss. M. now, "and repeat Enema at bed time."	Bowels moved every quarter of an hour, during the day, motions tinged of a dark color, by the enema ; pulse frequent ; skin warm ; tongue dry, but clean ; the œdema of the left leg is diminished and the abdomen continues small.
6th. Issabgool ʒiss. Sacchari ʒ ss. M. 3 times a day. Repeat the Enema and Cont. the Mist. Thebacia.	Is becoming frightfully emaciated, in consequence of the continuance of the violent purging, which no medicine has the power of restraining ; had twelve motions during the night of a thick yellow color mixed with slime ; pulse small and rapid ; tongue dry ; skin warm ; œdema of the left lower extremities increased ; there seems to be no accumulation of water in the abdomen, and the oozing of water has ceased.
9th. Cont. Pot. Bitart. Sacch.alb.aa.℥ss. Spt.Æth.Nit.ʒvj. Aquæ.Oii.as drink.	There has been no return of œdema in the lower extremities and scrotum ; abdomen enlarged and a small quantity of water has collected again in the cavity ; had four motions during the night, of a light yellow color.
10th. Continue as before.	Œdema of the extremities has nearly totally disappeared ; abdomen small and soft ; passed a large quantity of urine ; during the night had three scanty light-colored stools.
Vesp. Continue as above.	Has passed an increased quantity of urine during the day of natural color ; bowels only four times moved during the day ; no return of œdema in the lower extremities.
11th. P.Jalap.C.gr. vj. Pulv.Rhei. gr.vj. Sulph. Sub. ʒss. Aq. Menth. ℥iss. now.	Rested none in the night ; had five stools of a light yellow color ; abdomen soft ; tongue white ; pulse frequent ; features sharp ; and the whole system becoming daily more emaciated ; slight œdema has again appeared in the feet, but does not extend above the navel.
Vesp. Cont.	Asleep ; his bowels have been four times moved, motions scanty, watery and of a light dun color.
12th.	Much worse ; pulse small and feeble ; features sharp and emaciated ; skin clammy ; œdema has not returned, but a considerable accumulation of water has taken place ; tongue dry and foul ; had no motion during the night.
10 A. M.	Has been gradually sinking since morning ; pulse ver small and feeble ; features shrunk ; skin cold and clammy.
12 P. M.	Continued gradually to sink and expired at a quarter before 1 P. M.

Post Mortem Examination five hours after death.

External appearances.—The whole frame was much emaciated.

Head.—Not opened.

Chest.—The lungs and heart were perfectly healthy ; about two ounces of serum was lodged in the pericardium.

Abdomen.—Upon opening the abdomen about four pints of clear watery fluid escaped. The peritoneum covering the parietes of the abdomen and the digestive apparatus, presented a light violet color, and had a glistening appearance. The omentum was of a purple color, and rolled completely round the transverse colon, and was glued to it by means of a gelatinous substance, which also existed among the convolutions of the intestines. The puncture which had been made in performing the operation, (Paracentesis abdominis,) twelve days ago, for the escape of the effused fluid, had quite healed up, and no marks of inflammation were perceptible where the trocar had passed through the peritoneum. The stomach was large and contained about a pint of bright yellow colored fluid. The internal surface of the mucous membrane, of the same yellow tinge.

Small Intestines.—The duodenum, jejunun and ileum were of a pale color, but otherwise healthy.

Large Intestines.—The cœcum colon and rectum were one mass of disease ; the different tunics being thickened, and in a state of ramollissement ; to such an extent indeed, as to break, when handled in the most careful manner. Numerous ulcers, and the marks of healed ulceration, existed throughout the whole extent of the internal surface of the mucous membrane ; and several melanotic spots, were scattered over the diseased tissue. Amidst these different morbid appearances, isolated islands, or patches of a more healthy looking mucous membrane intervened.

Liver, spleen, &c.—The liver was remarkably small, pale and flaccid ; when touched it felt like a piece of the lungs. The substance of the liver seemed nearly destitute of blood, and did not bleed when divided by the scalpel. The gall-bladder was empty. The spleen was very much enlarged, but of a soft spongy nature, so that although nearly three times larger than natural, it only weighed ℥ xiij. ¼ ; it was of a dark color and crumbled to pieces when touched. When cautiously divided by the knife, it presented a very peculiar appearance, viz. small cellules, not unlike what are observed upon dividing the coarsest description of sponge. The kidneys and other abdominal viscera were healthy.

OBSERVATIONS

UPON THE MORBID AFFECTIONS OF THE SPLEEN.

In the preliminary observations upon this division of pathology, I have only slightly alluded, to those wonderful discoveries, which the microscope reveals to us, relative to organic life. It is however necessary to recapitulate, such of them as have reference to the spleen, for the arguments derived from pathology, by which I have chiefly endeavoured to prove, that the spleen is not made for nothing, must here as in all other cases, derive their chief value, from their relation to a recognized physiology, or use of this organ in health. Now I have shewn on the one hand, (and it has been received as a fact in all ages and nations,) that disease of the spleen (obstruction of its cells) is ever accompanied by disease of the blood.* That this disease is proved to be a want of red globules, that return of healthy structure in the spleen, is simultaneous with return of a proper supply of red blood. Again, I have adduced anatomical facts, that shew the peculiar fitness of the spleen, for the generation of blood vesicles,† that is, if we admit that all organized tissues take their origin in cells, and the ordinary mode of increase in cells (whether animal or vegetable) is by the development of new cells within them, from the granular germs which they contain.‡

This important step, in the knowledge of *cellular life*, which Dr. Barry has discovered, it is necessary to adduce, in order to assign a probable value and use in the spleen, to such expressions as these—" splenic vesicles," "cavities decomposed into recesses, these again into loculi, *on the bases* of which are seen in relief glands and *granules*," &c. Again—" thousands of little ampullœ," " a succession of cellules," " small cavities," " vesicular cavities," &c. What are all these cells for? We have here the granules and vesicles, the elements of cellular life; and M. Bourgery tells us their whole physiology; " Splenic blood appears to be the product of an elaboration by the floating corpuscles, and the granulo-capillary basis, which is deposited in the cavities of the vesicles, and is taken up by the absorbent vessels of their walls." And what is this blood like? " 1st, *lenticular globules*, which do not appear to differ from ordinary blood globules, surrounded with *a red limbus*, while others are *colourless*; 2dly, whitish globules, irregular in form and size which remind one, of those found in chyle or lymph." Hewson sees these chyle, lymph, or blood—globules, furnished with an envelope, leaving the spleen, by the very absorbent vessels alluded to; whilst another microscopical observer, connects all this chain of evidence in the following words: M. Donné§ says—" The globulines are the product of the chyle, which is continually being added to the blood. Three or four of these unite together, and whilst circulating with the blood, receive an albuminous envelope. They thus form the white globules. The white globules once formed, change little by little their forms; become flattened, coloured; granular matter in their interior becomes homogeneous or dissolved, and they are thus transformed into the red or proper blood-globules. The blood-globules themselves have only a passing existence; they dissolve after a certain time, and constitute the so-called *liquor sanguinis*. He says that certain substances, as milk, are capable of being immediately transformed into the blood-globules, by being injected into the blood vessels ; *and he regards the spleen as the organ more especially charged with the important function of the manufacture of blood-globules.*"

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* See p. 136. also the notes at p. 134 and 135. † P. 139.

‡ Dr. Carpenter's Principles of Human Physiology.

§ Comptes Rendus des Seances de l' Academie des Sciences, March, 1842.

Thus we have a series of facts, all pointing out the spleen, as a viscus to which a most important part is allotted, in this vital action of organic life, the renewal of the blood. Whilst there is no more foundation, for the pernicious conclusion, which some have arrived at, (whatever of antiquity it may boast, as a physiological fact,) that the spleen was made for nothing, than there is, for charging such functional sinecure, upon the brain itself. Nay, one is tempted to say of them, whose philosophic brains can only body forth, such baseless fabrications as these—

" That if they always serve you thus,
" You'll find them but of little use."

For not only might we gather abundant proof, that there are brains, of little apparent use to those who possess them. But we know, also, that some of the finest phrenological developments, have been actually carried off, " at one fell swoop" of a round shot ;—and yet judgment and reflection remain uninjured. For in a case that Wiseman has reported, the man yet shewed by his action, a mental perception, that "the better part of valour is—discretion," for "He that fights and runs away, may live to fight another day." Yet few are found hardy enough to assert now, that the brain is of no use. Whilst many, with Erasistratus,* do not hesitate to say as much of the spleen ; because it also, has been removed, wholly or partially, and the person has not seemed to be much the worse for it.†

It may be conceded perhaps, after all, that the spleen is of some use ; possibly of more use in the economy, than to act merely as a make-weight. Perhaps even that its importance is not limited to the mere preservation of symmetry, although this argument, as " to the eternal fitness of things," was not without its weight with Aristotle, in determining this physiological question,‡ and has even been employed by Bichat, in others. However, should my protest against the doctrine of splenic sinecure, be thought unfounded, I have yet one other suggestion to proffer, "those physiologists, who, not contented with the theories proposed to them, and yet incapable of making others more likely, have so very modestly asserted, that the spleen was made for nothing," I would propound something new, at any rate; and decidedly practical: and suggest that the spleen was *only made for mischief.* Some, to be sure, have been so far beguiled, as to imagine that it was only made for *mirth.* But a great philosopher, the immortal Haller, arose, and upset such a pleasant fancy; for he discovered, that a body could laugh as heartily, when tickled on the opposite side to that of the spleen, as if the titillation had been practised in the splenic region.[*] But can any such prima-facie objection be urged, against my explanation of the use, of this hitherto incomprehensible viscus? Even the very "punctilis dolor" of "a stitch in the side," might have suggested to some of these laughing philosophers of our own day, that if the spleen do no good, it can at least do evil. We may therefore, with mighty plausibility maintain, that this organ was *only made for mischief.* Some of the most ancient authors in medicine, as Hippocrates, and Aristotle also, say, that it is of all viscera, the most prone to disease.[†] Whilst among modern authors, M. Piorry asserts, "that mere percussion of the splenic region, will sometimes induce the *cutis anserina*, and a feverish tremor;" nor can we doubt of this, if we only "hit hard."

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* See Vesalius's Strictures on this opinion of Erasistratus, " Lienem frustra factum esse." De corp. humani Fabrica. Lib. v. cap ix. p. 439. Galen also is quite as severe with him. *See* De Nat. Facult. Lib. iii.

† See *cases* p. 144.

‡ The views which Aristotle entertained of the functions of the spleen are in every way remarkable, and I may add philosophical. He takes a wide range of the viscera generally, and shews that some of them, especially the liver, spleen and kidneys, seem designed chiefly, to unite the blood vessels engaged in secretion, into groups, which would otherwise, be hanging loose and pendulous ; that these organs unite also, in the common object, of purging the blood from useless matter. That the form and position of organs indicate something of their use. All have a double type, or are really double. The heart which occupies the noblest place, in the centre of the body, is divided in man, into two, so also is the brain ; the kidnies are fairly separate, &c. The spleen in position, therefore, being opposite to the liver, it is also associated with it, in function. They both assist in the assimilation of food, and formation of blood. He then takes a wide range of facts derived from comparative anatomy, which lead to the same inference. He says those reptiles or other animals that have spumous lungs, have no spleen, and little excrement (a remarkable fact, see Liebig's explanation) they have no bladder, perhaps no kidneys ; those, however, whose lungs are more fleshy, as quadrupeds, have a necessity for additional organs to purify the circulating fluid. They have a bladder superadded, and a spleen also. Especially, does this obtain, in the more perfect organization of man. He concludes therefore, that it is a necessary organ to some animals, whilst to others it is not so essential, and may even exist as a mere rudiment. (Operum Aristotelis. de Part. Animalium. Lib. iii. p. 769.)

It must have been only made for this, that when swelled and congested, it should be followed by general anasarca, or simple ascites;[‡] by a generally chlorotic state, and watery blood:[§]—by bleeding from the nose, or bloody vomiting;[‖] by bloody purging, or by hemorrhoids, or by actually bursting of its own accord.[¶] If abscess exist in it, then its mischievous action is shewn, by strange metastases of pus to other organs;—bloody or purulent stools;—or ulcers in the legs:—or arms:—or fatal sloughing of the cheeks or pudenda.[**] Another variation of the ills it gives rise to, is shewn, by general scorbutic disease;—spongy gums, stinking breath, loosened teeth, purple and black echemosis, or other spots and blotches, all over the body;—prostration of all strength, weariness of life, even at life's most joyous and energetic period; and its termination in a miserable and early death.[††]

How illimitable is its power of mischief, may be deduced from this universal fact, that wherever intermittent fever is, there also will be found spleen disease. Of this, in all paludal countries, we have abundant proof, in the classical work of M. Monfalcon.* Indeed M. Piorry has also stated, that "the frequency of hypertrophy of the spleen, in these fevers, is so great, that it was found to be present in 154, out of 161 cases." I have observed it in every part of our dominions in the east. In India from the Sutledge to the Burampooter ; from Cape Comorin to the Hymalaya ; nay, even through Burmah, and the Malay peninsula, Penang, and Singapore. In Calcutta it would be difficult to assemble half a dozen coolies without some of them, (perhaps half,) bearing the mark of the branding, which is so favorite a mode of treatment with natives ;—and is derived from the Greeks† and Arabs.‡ At the annual invaliding committee also, among the gallant fellows who fought in China, I observed but too many instances of spleen disease, rendering the sufferers more helpless and miserable than their wounded comrades.

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[*] "Nulla tamen sinistri lateris super dextrum prærogativa fit." (Elementa Physiologiae. Alberto Haller, Tomus vi. p. 424.)

[†] "Nullum affectum cor patiatur....ut in ceteris visceribus cernitur....Renes enim saepe numero, calculis et pannis et papulis referti videntur, atque enim jecur et pulmo ac *potissimum lien.*" Operum Aristotelis. De part. Animal. Lib. iv. Edit. Genevæ, 1605, p. 766. The same remark as to its proneness to mischief is made by Hippocrates (p. 502) "caput autem et lien morbis maximæ sunt obnoxia." *De morbis lib.* iv. *Sect.* v.

[‡] *See* Cases p. 146 and p. 155. and 162.

[§] Case p. 151.

[‖] Cases p. 152.

[¶] Case by Mr. Greig, p. 145.

[**] Case p. 152, p. 16.

[††] See p. 152. At this very time, in which I write, there is one boy in hospital twelve years old, another of seven; both anasarcous from spleen disease. There are two girls also, much about the same age, and having no other ailment, than the mischievous pranks, of an useless spleen. But who can relieve them.—Two children have died this month of its fatal influence, one of mortification of the leg from spleen, the other from splenic starvation, or cachexia.

Of its undoubted title, to a foremost rank, among the various "ills that flesh is heir to," most melancholy evidence is furnished, by the "statistical Reports" of Major Tulloch ; although there does not appear to be any distinct return of "spleen disease," such as there is of "liver disease." But does not so startling a result, as he lays before us, abundantly demonstrate the necessity of such returns? Can there be a doubt, that the spleen is as liable to organic derangement as the liver? Why then should it not be reported upon as carefully. I verily believe, that its morbid influence, though more slow, is equally sure. Yet we find in abstract No. 1, p. 23, "diseases of the liver" 100 ; yet no such class as disease of the spleen :—only among the class "all other diseases," of splenitis three cases are recorded ;—and nine in abstract No 2. But why is this imperfection, when he tells us, that "all were labouring under *diseased spleen*," &c., giving to it the first place. He says at p. 15: "Some idea of the state to which these two regiments of the Line were ultimately reduced, may be formed from the circumstance that, of 427 men mustered with the 44th Regiment on the 24th November, 117 died before the same day in the following month, and 253 of the survivors were in such a condition that they had to be sent to the General Hospital at Calcutta on landing ; nor was the 54th Regiment more fortunate, for, of 316 mustered at the same date, 269 had been admitted into the hospital in the course of that month, and 76 died before the corps reached Madras in the end of December, so that on landing, the whole effective strength was scarcely sufficient to form a guard for the colours." Again at page 17,

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* Histoire Medicale des Marais. Paris. 1826.

† Hippocrates speaking of the first variety of spleen disease says, "Si vero, ab his non melius habeat, *splenem fungis urito*, decem magnis crustis inustis, quem maximus fuerit splē, et maximus elevatus—" He recommends it also, as a last resource in the second and third varieties, "Urito ipsum eo modo quo etiam alias," for the fourth also he says, "decem crustas in splenem urito et statim sanum facies ;" for the fifth we have as a last resource, "Urito ipsum eo modo." De Intern. affect. p. 216—Edit. Vincente. Lugduni 1564.

‡ Hali Abbas gives precise directions for cauterizing the spleen, first with the "bifurcato cauterio" ...... "quod semel duas faciat cocturas ;" again "utebantur aut. antiquorū quidam cauterio, cui sex eminebant capita qū calefacerèt una semel coctura sex locis īprimebant." PRACTICE. LIBER NONUS. de splene coquendo. Cap 76.

Albucasis gives a very ingenious method—pinching up the skin and thrusting through the burning iron, he says,—

"Modus vero alius in ustione est, si calefeceris cauterium duobus verubus præditum, quod descripsimus, in capite de luxato cubito. Elevabis cutim, quæ e regione splenis est, ubi pervenit cubitus infirmi sinister, et sit elevatio tua cutis, ad latitudinem corporis, ut cadant ustiones ad longitudinem corporis : tunc intrare facias verrua quo bene calefacta, donec illis penetraveris cutim ex utraque parte. Tum extrahe cauterium, et erunt ustiones quatuor. Quodsi malueris, urere possis cum altero cauterio tribus verubus prædito. Dein curatolocum ustionis postquam pus per multos dies fluere permiseris, id et enim magis proficuum erit quam omnia, quæ præcesserunt alia, in curatione."—Edit. Oxon. Tom. I. p. 65. The common sense of eastern countries confirms this by the universality of the practice of burning in spleen disease.

"The appearance of the 44th and 54th Regiments when they reached their respective Presidencies, exhibited a melancholy instance of the baneful effect of this climate, on the European constitution. Almost every soldier had immediately to be placed under hospital treatment : their countenances are described as of a dull saffron hue, their lips pale, their features swollen and œdematous, their abdomens tumid, and their whole persons apparently enlarged in bulk ; *all were labouring under diseased spleen or derangement of other important viscera*, quite beyond the control of medicine. The only chance of recovery rested on a speedy return to their native country, but numbers died before that remedy was available, and of those who left Arracan, scarcely one-half were alive at the end of twelve months. In its ultimate effect on the constitution, the fever of Arracan appears to have very much resembled that of Western Africa, for the survivors of the Royal African Corps, who returned to England in 1827, presented nearly the same appearance, and were labouring under similar visceral derangement ; the proportion, too, who afterwards became available for further service was equally small in both cases."

Nor was it less fatal in the native army. Among the Sepoys who serve in Bengal, spleen disease, and consequent scorbutus, is even now, a frequent cause of invaliding, and of death. Before the order was passed for triennial reliefs, founded upon reports by Dr. Finch, against long residence in the delta of the Ganges, it was no uncommon thing to find one hundred men in hospital out of a single corps ; and half of them, for spleen diseases only.

The conclusions which I have come to, upon this subject, however humiliating, will, I believe, be found just. We are not so well acquainted, as were the ancients with spleen disease, either simple or in its associated lesions ; and consequently, we are not so successful as they were, in its treatment. "Morborum curatio, morborum scientiam cognitam ponit." Indeed, I think, it might admit of proof, that the native hakims, who have inherited the practice of the ancients, without the reasoning upon which it is based, are more successful than we are, in this department of medicine.*

It appears to me, that the uncertainty which attached to the physiology of the spleen, has led to this actual neglect of its diseased conditions. A result as little creditable to our profession, as its continuance will be opposed, alike to the interests of humanity, and the advancement of science. Let us be thoroughly satisfied that it can do evil, at any rate ; let us acquaint ourselves with the full extent of evil which attaches to disease of the spleen, (and the misery of splenic scorbutus is really enough for humanity to bear,) and then leaving off other speculations as to its use, let us grapple with the mischiefs we actually meet with. The ancients knew, that they could cure, anasarca, dysentery, ulceration of gums, epistaxis and hematemesis all, at once ; by reducing an enlarged spleen to its proper bounds. This was sound medical knowledge. We have neglected it : and have therefore gone backwards, instead of forwards.

It may be of some practical use, if the affections of this organ be now considered taking, advantage of any light that may be afforded by the writings of the ancients, since they are so much more completely treated of by them, than by modern authors. In fact, some diseased conditions,(as abscess) well known to the old fathers of medicine, are altogether denied by their successors;—or overlooked; or most likely unknown to them. An useful division may be into.

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* Even the wandering fakeers are greatly sought after, not only by natives but Europeans also, for their skill in the cure of this disease.

1st. Congestion of the spleen, with hypertrophy, (or enlargement and induration,) after fever.
2d. Congestion, with enlargement, and ramolissement, (softening.)
3d. Congestion, with inflammation, and abscess.

Whilst vomiting of blood, bloody stools and urine, general anemia, and anasarca, especially when characteristic of scorbutus, with all its horrors, of sloughing, &c.; will be considered as associated lesions; keeping in view the cases and preparations, as the basis; unto which we must repeatedly return. We may also consider, perhaps profitably, the grounds upon which elephantiasis and beri-beri, have been associated with lesion of this organ.

If this sort of *treatise*, should appear at first sight, somewhat inconsistent with the plan of this work, yet a little consideration will shew that in reality it is not so. The pathology of the blood, is inseparably connected here, with these morbid conditions of the solids. No true notion of the nature of these alterations of solid structures, can possibly be attained, without considering the state of the blood, upon which they depend.

Animal organization, differs from all mere mechanical adaptation, in this, that the machinery can renovate itself, can be built up again when destroyed, and re-created from the blood. But, put a stop to the blood's power of reproducing structures; deteriorate its quality, or stop the supply, and the machinery tumbles to pieces of itself. The steam is never blown off, the fires never put out, without extinction also of life itself. Now as all the pathology of the spleen points to its use, as a most important formative organ of blood; we cannot avoid considering those consequences, (i. e. diseases) which result from this function being lost or impaired, this is indeed the very plan which has been followed with respect to every other organ.

Man, is in truth, a rare machine! A noble mechanism! But he can no more get on, without blood, than a steamer without steam. And just as wise would be the attempt, to give a true, notion of the cancrum oris, the fungous sores,—the epistaxis, hematemesis or dysentery, or in fact any other *diseased localities*, whether of the external vestment of our bodies, the skin; or its internal lining of mucous membrane; by confining our attention exclusively to such bleeding from the nose, the stomach or the bowels: and disregarding the alteration of the blood itself;—it would, I say, argue just as much wisdom, to look *singly*, at any of these spots, or places, at which the blood oozes out, and the body begins to die, as for an engineer to look just to one small crevice, whence the steam may be escaping; and not to know, nor to conceive, that *the whole boiler is ready to burst*, from an universal canker or rust.

The blood, we have seen, is a true organism. "It lives, and moves, and has its being." Of all animals, it is emphatically declared to be, "the life thereof," being indeed so preeminently necessary, to all vital action, that whatever interrupts it, is disease; whatever stops it, is death; total or partial destruction.

This is a great broad, undeniable truth. It is capable of explaining the greater part of those structural changes to which our frames are subject. But never in the history of medicine, has it been so much neglected as in our own days. The wisest and ablest of the ancients, assigned to it a chief place in their pathology; whilst in ours, it scarcely finds so much as "a local habitation, and a name." Yet they who despise or neglect it, will experience (especially in this country,) that pathology without it, is of little practical value; for it will never guide them to the cure of disease. Without it, even the nature and effects of fever, cannot be understood; and yet that one word, alone, will comprehend, by far the greater part, of the diseases, which we have to treat.

There are, it is true, changes of form and of structure, which however slight have yet a vast influence, from their locality: by deranging or destroying the function of the part or organ, in which they occur. And as one principal object which I had in view, in undertaking this work, was to guide the young student of pathology, the simpler and more obvious relations of cause and effect, were evidently best suited to begin with. Thus we have already shewn in the heart, what mighty mischiefs, to the jeopardy even of life itself, result from a little effusion of lymph, elsewhere of no importance, but there by producing entanglement in valves, and the narrowing of any of its various inlets or outlets, it becomes inconsistent with healthy function.* Nor can such minute study, of these mechanical consequences, as has been given to it by others, be too highly commended. Again, how slight an ulceration,—how trifling an effusion of lymph in the eye, may become fatal to vision, is apparent to all, for here "the faithful sight" "Engraves the knowledge with a beam of light." Whilst as regards the chest, the ear may become so tutored by sound, as to instruct us of the changes which take place there, in a manner only a little less satisfactory, than if we actually saw them. This has been shewn in the division, AIR PASSAGES AND LUNGS.†

But that precision, that minute accuracy of observation, which guided by mechanical laws, is in these instances so necessary, and is capable of absolutely mathematical precision; and which yields besides such a rich harvest of success; would in other cases be wholly misapplied; a mere labour in vain. A little bone, a little cartilage, or a little lymph, which when effused in the heart, may be the certain harbingers of death, are when deposited upon the spleen, as in No. 647, of no pathological importance whatever. In this situation they could in nowise, influence that peculiar function which we assign to the spleen. I shall not therefore dwell upon them. Of as little value would be a long description of any other changes in the spleen, which are limited to its surface only. Whereas a careful examination, of the influence upon organic life, of changes in the proper splenic structure, is full of interest and of profit; is a fresh field of enquiry, and not only essential to the right knowledge of the present subject, but has an importance also, in its relation to the pestilent and destructive ravages of disease, in jails, in camps, in fleets, hospitals, and sieges, wherever man is placed, in such circumstances that this life-giving fluid, the blood, can no longer be formed. Disease of the formative organs of blood, becomes thus associated with absolute want of food. In neither case can blood be formed.

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* See pages 24, 25, 26, 27.

† See Cases of the diseases of respiratory organs from pp. 35 to 56, which I have myself given upon this subject.

ENLARGED SPLEEN.

From consideration, then, of the morbid specimens and cases together, we infer; 1st—that during the paroxysm of simple intermittent fever, there is great engorgement of the spleen,* as seen in the CASES given at pp. 146 and 147. That repeated attacks, must be also, repeated congestions;—and will, according to the constitutional power, result, either in permanent distension of the splenic cells, accompanied by hypertrophy of the different splenic structures—of which we see an extreme example in No. 556; where all the various organic elements, are thus hypertrophied:—or 2d, that whilst the internal structure only, of this great lymphatico-sanguine-gland, becomes more or less attenuated, and disorganised by ramollissement, yet there is still power in the constitution, to limit the mischief, by depositions to the investing membrane of the spleen *externally:* and to prevent, in this way, those evils, which would result from the softened, pultaceous structures, breaking forth into the peritoneal cavity. An illustration of such sanatory action, (in the case of abscess) recent, but ineffectual, is seen in the preparation No. 649. Another of more chronic character, in which the lymph has undergone that cartilaginous transformation, which is so often met with in the pleura, is seen in No. 647.† This seems to have been effectual in preventing effusion; the contents of the cyst have been absorbed, and have left the cavity which now exists.

I subjoin one other case forwarded by the Medical Board.

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* Morgagni has demonstrated that these enlarged spleens result from fever—See Epist. xvi. n. 6, Epist. xx. n. 2,30 and 51, Epist. xxxi. n. 2, especially Epist. xxxvi. n. 1 —where the "spleen weighed eight pounds." The internal parts of this viscus, did not seem to differ from their natural constitution.—Externally both the sanguiferous and lymphatic vessels appeared enlarged, *so that the lymphatics were discovered up and down through the coats of the spleen, and made a very beautiful appearance.*"

His explanation of this morbid phenomenon—is full of sound reasoning and follows n. xviii., p. 200. "For a viscus which is of itself lax, and cellular, and from which the return of the blood is slow, as it is to pass through the liver, before it enters the vena cava, is extremely liable to tumours, especially if that little share of strength which it has originally, being weakened by a disease of long continuance, and the blood being made inert and sluggish, some particles are left therein, which ought either to be corrected, or thrown out of the body."

"For the sluggish motion of the blood being increased for these reasons, while, like muddy water beside its channel, it is diverted into the cells of the spleen, it of course deposits therein, whatever corpuscles it may contain, which are heavier and more gross than the constitution can bear, and by this means, in part obstructing its own return, distends the cells of this viscus more and more. And the more the whole spleen is distended, by the distention of the cells, so much the weaker it is, and for that reason more liable to retain, in great measure, those fluids which afterwards flow into it."

M. Bally, M. Nonat, and M. Piorry, more recently, have very successfully investigated this subject.

† "Cartilaginous transformations of similar nature are reported by Morgagni.

Epist. vii. n. 9 & 12.
Epist. x. n. 19—bony transformation.
Epist. xxiv. n. 18.

ENLARGED SPLEEN.

(By Assist. Surgeon M. Newton.)

Corporal William Tindall, æt. 34 ; admitted 28th September 1833.

Sept. 28. Hirud. viii. Scrob. Cordis. viii. abdomin. Ap. Hydr. Subm. gr. xv. Opii. gr. i. m. s. s. et post horas ij. Ol. Ricini ℥i. c. Aq. M. P. ℥iss. et T. Opii. gr. xxv. Enema Emol. stat.	Complains of severe pain in the abdomen, and pit of the stomach accompanied by frequent purging, and vomiting ; pulse is very small, quick, and thready, upwards of 100 to the minute ; skin warm, and dry. Tongue foul, has been ill for the last week with purging, great thirst. Had just passed a stool, which is watery but of no particular character. Relieved by the leeches.
Vesp. Rept. Hydr. Sub. c. Op.	Is much better ; feels weak ; no pain ; tongue covered with whitish fur ; pulse languid, can with difficulty be felt at the wrist ; after two injections pain left him, dejections natural, in colour bilious.
29th. Rept. Hydr. Sub. c. Opii. Sp. Am. Arom. gtt. xx. Brandy ʒii. Quininæ Sulph. gr. iv. Infus. Gent. ℥ ss. m. ter quaterve in dies.	
Vesp. Acidi. Sulph. D. Sodae Carb ā ʒ ss. T. Opii. gtt. x. in statu effervescentiæ bibat. Fomentations of warm water. Empl. Lyttæ. Epigast.	Constant vomiting, pulse can hardly be felt at the wrist, stools watery.
30th Pil. Hydr. gr. v. stat, et postea. Mist. Purg. ℥iv. Habt. Sub. Hydr. gr. xv. Opii. gr. ij. stat. Vini Gallicæ ℥ ss. et Mist Camphoræ omni. hora et con. p. r. n. 9 A. M. Omit. mist. Vin. Gall. Empl. Lyttæ nuchæ. 11. P. M.	Vomiting relieved. Stools slimy, watery and slightly mixed with fœces, has not had a proper motion yet, pain removed. Is at present free from fever, but his skin is cold and covered with a clammy perspiration ; pulse small and frequent, respiration hurried, conjunctiva has a yellow tinge, has had frequent, scanty stools, slight vomiting during the day, pulse hardly perceptible, skin cold with clammy perspirations, head hot, respiration difficult ; incoherent ; has had no purging since the calomel and opium were administered. Delirium, a short time after succeeded by coma. Died about 2 P. M.

Opened the body at ½ past seven A. M. October 1st 1833.

Inspectio Cadaveris.

Abdomen.—Liver, dark colored, firm, apparently sound. On making sections of its substance, no disease discoverable ; gall-bladder large, distended with dark colored bile. Spleen uncommonly large, filled (gorged) with dark grumous blood. Mucous membrane of the stomach had a slight blush of inflammation, the first turn of the duodenum, and ascending portion of the colon had a similar appearance ; omentum majus covered with fat ; kidneys sound, as were the rest of the abdominal and extra-abdominal viscera. A great quantity of fluid was found in the stomach, and intestines, of a grey brownish colour, resembling linseed tea, or dirty congie water ; mixed with an oleaginous or fatty secretion. *Thorax*, lungs healthy, adhesions firm, and numerous. Heart, small, no disease. *Head*, considerable effusion. Brain pallid, rather soft.

REMARKS.—The symptoms of this patient's case were, constant thirst, vomiting, pulse at no period distinct, with the greatest attention difficult to ascertain its existence at the wrist; anxiety and restlessness, continually changing position; surface of the body and extremities cold; had been ill several days before admission into Hospital; was continually in the habit of exposing himself to the sun, angling for fish in the tanks. Finding himself unwell, took five grains of calomel, and a dose of salts, obtaining no relief, came into Hospital, complained of a dull heavy pain in the situation of the colon, leeches were of considerable service, the blister with the effervescing draughts with tincture of opium relieved the vomiting; pain also left him. On the 21st of April last, was attacked with the same complaint, and after remaining in Hospital five days was discharged perfectly well.

SPONTANEOUS SOFTENING OF THE SPLEEN.

That this state of "ramollissement" is frequent, but shews little indication during life of its existence, seems clear, by the numerous cases of ruptured spleen, occurring among natives, from the slightest causes; and is especially apparent from the very interesting case by Mr. Greig.* This man had only two cold fits of an ague, yet the spleen became "so distended," "so enlarged," so disorganized, so softened throughout, "as scarcely to bear handling:"—no sanitory process being instituted to guard against effusion;—consequently, although no great laceration occurred, it yet gave way, and disgorged its contents by numerous small openings; and the man died.

Even in England, it has been observed by Dr. Baillie, that softening of the spleen takes place without any evidence of inflammation.† It constitutes therefore a distinct morbid state. Whilst, no one feature, is so eminently characteristic of Indian pathology generally, as this tendency which exists in every vital organ, to take on this disorganizing, annihilating action, which seems to me, very different from inflammation. Instances of this have already been seen in the heart, No. 620, p. 16; No. 774, p. 24. I have observed two other instances, wherein it constituted the only morbid lesion. In one, the heart would not bear its own weight without laceration. In the lungs a similar disorganization has been effected as seen in No. 641 p. 34. In the liver also we have instances of it, Nos. 779, 656, p. 66. We shall see it exhibited in a more striking manner in the brain, Nos. 772 and 612. And many instances will be found of such action taking place in the digestive canal.

But unquestionably this state is exceedingly frequent in the spleen. In a case recorded in the Bombay Transactions, the softened spleen seemed to be evacuated by vomiting. Its disorganized tissue being found in the vomited matter, and the patient recovered. I regret, that I have not the case to refer to. In a case, written so early as 1674, by Gerardus Blasius (Observata Anatomica, p. [illegible]4), the whole, nearly, of the spleen, seems to have been thus evacuated, or to have flowed out from the

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[*] See *cases* pp. 144, 145.

[†] Morbid Anatomy 3rd edition, p. 256.

wound in the side.* In cases where the spleen has not been found at all, it may have thus been destroyed. The earliest I have met with, is cited by Johannes Stephanus, from Hollerius.† Sometimes a direct communication is effected, by ulceration, between the stomach and spleen; as in the case recorded by my friend Dr. Green, in the Transactions of our Calcutta Medical Society—as follows:

ULCERATED COMMUNICATION BETWEEN STOMACH AND SPLEEN, SPLENIC SCORBUTUS.

No. 1. "A seaman, *disease* fever, with enlarged spleen, occurring at sea. *Symptoms* fever; petechiæ, which had appeared at sea early in the disease; liquid bloody stools; enlarged spleen; swollen, spongy, ulcerated gums;—death on the 31st day after admission.

Post Mortem Examination.

Head.—Considerable effusion within the bag of the arachnoid, both superiorly and at the base of brain; effusion between the arachnoid and pia mater; also largely within the ventricles.

Heart.—In pericardium ℥j of yellowish fluid—walls of right ventricle very thin, pale, and flabby; black liquid blood in all the cavities; in the right auricle was a separation of the blood into large whitish coagula, and a thin black liquid. *Liver.*—A small abscess, containing a thin pus, was found in it.

Stomach.—A large ulcerated opening through its coats, communicated with a large excavated ragged cavity in the spleen; the mucous membrane of the stomach pale; the edges of the ulcer thin, as if dissolved; a yellowish mucus within the stomach. *Spleen* enlarged, adherent closely to the stomach and to the abdominal parietes; the peritoneum, where adhered to, presented dark bloody spots of extravasation; the cavity or abscess in the spleen which appeared to be the result of ulceration—(an advanced condition of the state found in No. 2)—opened externally, on its surface, in several places. *Intestines.*—Mucous membrane of lower small bowels ulcerated, thickened, ecchymosed, and of a generally deep purple color; feculent contents. *Mesenteric glands* enlarged, hard. Lumbar glands hard, highly vascular, enlarged."

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[*] Case of Destruction of the Spleen.

"In Viro 24, annorum subfinèm anni præcedentis à me dissecto, *Pericardium* Aqua limpidissima, saporis nullius, repletum adeo, ut instar Vesicæ alicujus distentum occurreret. *Lien* fere totus absumptus, sic ut nisi globuli quidam variæ magnitudinis, exterius nigricantes, intus rubicundi, se exhiberent, *Omentum* quoque totum nigricantis coloris, acsi gangrænosum esset. *Ventriculi fundus* inflammatus eo loco ubi Omento dicto cohærebat. Continebat hic materiam flavam, mucosamque, qualem etiam magnâ quantitate agonizans vomitu excreverat. Conquestus fuerat plures per septimanas de dolore summo circa scrobiculum cordis, vomituque valde molestante. Usus fuerat, bené alias sanus, dum caleret maxime ex motu excedente, frigido potu, unde altero die delirare incepit adeo ut ab aliis contineri debuerit, alias porci instar terræ foveis se abscondens, stramineque etiam summe impuro contegens. In inguine, natura apertionem fecerat, per quam materia effluxerat copiosa ad plures dies, Chirurgus foramen clauserat jam ante aliquot septimanas, unde in ventre aperto saniei fœtidissimæ ingens copia collecta, imprimis loco lieni vicine."—*Gerardi Blasii Obs. Anat.* p. 124.

[†] In Hippocrat. Comment. Venet. 1633, p. 7.

Dr. Green, however, does not appear to regard this as a true abscess. To me it appears that both this case and the next throw great light upon Mr. Greig's case. None of them can be looked upon as abscess;—there is destruction of the organ in many places at once, by ulceration and *softening* in a manner different to what occurs in abscess.

ULCERATION OF SPLEEN, SPLENIC SCORBUTUS.

No. 2. "A Seaman, *disease* fever, with enlarged spleen; attacked at Bombay; probable cause of the disease—situation of the ship in dock at Bombay, near to a shallow stagnant piece of water; *symptoms*, fever; petechiæ over trunk, abdomen, and head, coming out after admission into Howrah Hospital; pain over spleen; pale gums; teeth loose:—death on the seventh day.

Post Mortem Examination.

Head.—A layer of slightly reddish serum upon the surface of the hemispheres escaped, in quantity about one ounce, upon division of the dura mater; congestion and distension of the large veins and their ramifications upon the surface of the brain. About opposite to the temple, upon each side, to the greatest extent upon the left side, lying upon the arachnoid, and easily scraped off from it, was an extravasation of dark blood. At the site of the extravasation on the left side, the brain was softened; fluid at the base of the brain. Swollen salivary glands exhibited in their divided surfaces, a dark-colored, softened, disorganised structure.

Heart.—Pericardium contained six ounces of fluid; walls of right ventricle much thinned; the blood found within the cavities of the heart exhibited a marked separation of its coagulum into, a yellow firm clot, and a black loosely coagulated liquid.

Abdomen.—Stomach.—Contracted in dimension, its mucous membrane at the great end, of a purple vascular appearance. Intestines, caput coli its mucous membrane, purple and vascular in places; a few small, ragged, excavated purple-edged ulcers upon it; contents feculent.

Spleen enlarged in size; it presented externally numerous oval-shaped, pale, raised portions, with irregular purple surrounding margins; these dipped into the substance of the spleen, to the extent of an inch, maintaining the same pale color, were soft and separated from the natural structure by a fissure, the result of ulceration.

Liver and kidneys, gorged with blood. A thick, greasy, pale, straw-colored kind of mucus in clotted portions, was found lying upon the ascending colon, where that covers the kidney; also lying upon the spleen, and between the spleen and stomach, without agglutination of the viscera or increased vascularity of the peritoneum; glands along the spine and of the mesentery enlarged."

I am also indebted to Dr. Green, whose careful observations have done so much to illustrate oriental pathology, for the following case.

PNEUMONIA, DYSENTERY, AND DIFFLUENT SPLEEN, ILLUSTRATING NO. 647, DEFENDED BY CARTILAGINOUS DEPOSITION.

July 6th, 1844. I examined a man the other day who died of a complication of disease,—of pneumonia, dysentery and spleen disease. He had been suffering from severe spleen disease, viz.

fever, enlargement and pain of the organ, diarrhœa, &c. for several months ; although he had got better of the disease, that is, it had become quiescent, for a time, and pneumonia carried him off. He first, since his admission into Hospital last year ; complained of spleen disease, in October last.

Post Mortem Examination.

The spleen was about three or four times the natural size ; its capsule pretty nearly throughout had the texture and appearance of white cartilage, from three to four lines in thickness, its parenchymatous structure softer, and lighter colored than usual, a little more consistent only than raspberry jam, intersected with white membranous fibres, not at all turgid with blood. This kind of spleen disease is, I think, common. I do not know of any particular diagnostic symptom or sign of it. I send this fact, as you are you say now writing upon the spleen."

Of the simple softening of the spleen, which is nevertheless irreparable destruction, I have another instance for which I am indebted to the Medical Board of Bengal. In such a case it may easily be ruptured from vomiting, or from leaping, as Haller has recorded ; without external violence.* Dr. Finch says, of the sepoys in Bengal, suffering from enlarged spleen—"occasionally though seldom, it proves fatal by rupture, in which case death takes place suddenly, either at the commencement of the cold fit of an ague, or by even the slightest exertion of the invalid walking, it may be from his own charpoy (bed) to that of his comrades."

DIFFLUENT SPLEEN (DISORGANIZED FROM SOFTENING.)

(By the late Dr. Spens.)

V. S. ad. ℥iv. Cal. Pulv. Ipecac. Co. ā. gr. x. h. s.	Henry Owen ; admitted 7th September 1833. Has had Dysentery for five days, with pain of abdomen. He has been drinking hard, and looks exhausted, and is very restless.
8th. Hirud. vj. Pulv. Ipecac. Pil. Hydrarg. Ext. Gent. ā. gr. ij. Sulph. Quinin. gr. ss. 3 times a day. Pulv. Jalap. Co. ℈ij. at noon.	He is easier and more composed, fainted soon after the vein was opened ; five watery stools mixed with mucus ; much tenderness of left iliac region ; pulse 96.
9th. Cont. med. Hirud vj. Ext. Hyosc. Ext. Col. Co. ā. gr. v.	Had fever yesterday ; no blood nor mucus in the stools which are of an orange color. Had a rigor to-day with pyrexia, and much pain of head. Delirium ; great restlessness ; pulse quick, sharp.
Merid. Vesicat. Epigastrio. Cal. ℈ij Opii. gr. ij. now. Opii. gr. ij. Ext. Hyosc. gr. vj. at 9 o'clock.	More composed (in the evening). The symptoms seem to arise from delirium tremens. Vomiting, no pain of epigastrium.

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* Elementa Physiologiæ Alberto v. Haller. Tom. vi. p. 399.

10th. Ol. Ricini ℥i. Sulph. Quini. gr. ij. now. Opii. Hyosc.ā. gr. iij. at 9 and 12. Cal. Ext. Col. Co. ā. gr. iij. every 2 hours.	Slept some last night; skin cool, very little headach, two stools; he is composed and easy.
Vesp. Pulv. Jalap. Co. ℈ij. Sul. Quinin. gr. ij.	Has taken twelve grains of opium and as much Hyosciamus since yesterday morning; had some sleep; bowels open.
11th.	Cont. Opii. et Hyosciam every four hours.
Cont.	Again getting hot. Picking the bed-clothes; pulse rapid and very small.
Vesp.	Died at three P. M. violently delirious for an hour previous.

Post Mortem Examination.

Head.—The vessels of dura mater turgid and much enlarged, the vessels on the surface of the brain large and filled with blood. The pia mater in many places much thickened; very little fluid in the ventricles. In the brain there appeared very little cineritious substance, some fluid at the base of the brain. The lateral sinusses gorged with clotted blood; much fluid ran from the spinal column.

Thorax.—Adhesions of the lungs on both sides, very firm and extensive. Heart pale and loaded with yellow fat.

Abdomen.—Liver enlarged and of a brownish yellow color, it adhered to the ribs on the right side; left lobe much enlarged, spleen completely disorganized, mere bloody pulp, held together by the peritoneal coat, it adhered to the stomach, the coats of which at the junction were much thickened, and an appearance like ecchymosis presented itself. Stomach.—The internal coat red and thickened throughout. The great intestines loaded.

SPLENIC SCURVY.

I have already remarked, that it would not have been necessary, in a work like this, to enter so minutely into questions of structural anatomy, and physiology, as I have done, with regard to the blood globules and the spleen,—were it not manifest that some very important diseases associated with the spleen, could not otherwise, be explained at all; such especially is *Splenic Scurvy.* This is a true scorbutus: consequent upon the loss of function in the spleen; and consists in disease and diminution of the blood. It shews itself in a variety of horrible ulcerations, sloughings, and hemorrhages, in whatever part it be most defective, in this main source of all life, and of all living structure, the blood. Now if the spleen be as intimately concerned in forming red blood, as I have with much labour, endeavoured to prove that it is, we have only to stop its functions, and we shall then produce scurvy. Thus scurvy is induced by disease of the formative organs of the blood globules, as effectually as it can be, by withholding the materiel from which blood is formed;—by feeding the animal man, upon putrid meat, and bad grain, and washing down such a *pabulum vitæ* with stinking stagnant water. In either case the blood is not renewed, the body therefore feeds upon itself. Even on land, (as in Arracan and China, for instance,) this has been found to answer exceedingly well, with the addition of hard labor, in producing scurvy: indeed quite as well as if the said animal be kept at sea, in a sloppy, leaky, ship's hold, without other food than salt meat and rotten biscuit. It is merely stopping the supplies either way; whether it be that we have no stomach or no food, the effect is the same. I saw it quite effectual among the poor prisoners on the Burdwan road, who were left to the tender mercies of Bengallee Burkundazes. The same effects (scorbutic) are found to ensue from the same causes even in animals as noticed by M. BALME (*Traite du Scorbut, ch.* XI.)

Again the same results are seen in typhus, sealing up with mucus the absorbent surface of the bowels; and in tabes mesenterica, by the embargo to the passage of chyle, which disease of the glands occasions. Nor is this consideration at all irrelevant to the subject. I have seen the livid blotches, the rotten structures, the very same sphacelus and death, occur in typhus fever in this country, which is found to accompany every other form of dissolution of the blood, if long continued. For in the worst typhoid cases, for instance, there is no possibility of renewing the blood; all nutritive absorption, except perhaps in the lower bowel may be sealed up, by a coating of mucus absolutely impervious to such action.* Here therefore we have again, another variety of disease in which the formation of new blood is prevented.

A case of this sort of blockade, produced by typhus, occurred when I was at Simla, and is related at p. 289 of part ii. vol. 8, Transactions of the Me-

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* This opinion of the effect of mucus in the bowels, to the production of petechial fever is everywhere apparent in the elegant yet practical work of STRACK, see p. 114, 119, 133 (145, closing bile ducts,) &c. (Caroli Strack Observationes Medicinales de Morbo cum Petechiis. Carolsrhae 1766.) He seems to have attached a different explanation to what I have ventured to give, believing, that it acted by contaminating the tissues, (see p. 119.) "Demonstrandum est, ideo multum exarcisse diuque continuâsse, propterea quod putrida in imô ventre materia exuperaverat." Again in Egrotus xlix. p. 137 he says,

(INSPISSATED MUCUS IN THE BOWELS IN TYPHUS.)

" Anno 1761 initio Februarii juvenis 18 annos natus aliquandiu antequám eum accepissem, ægrotabat. Erat ejus facies lurida pallidaque, et oculi retracti, et arteriarum pulsus frequens; et febris summa. Prominuit etiam intestino ileo suprà os pubis secundùm vesicam magnus tumor durus rotundus, ex quo æger acutè doluit, et urinam præceptam habuit; et lotii parum, idque difficulter, emisit; et siquidem emisit, doluit: et erat omnis urina, cùm exiisset, crassa, alba, turbida, veluti jumentorum urina. Porro erant juxtà interna brachia Petechiæ.

Quare ægro protinus enema ex sero lactis cum nitro et melle indi jussi; coctosque cum Sale Seignette tamarindos exhibui; adjectâ mannæ portione. His alvus laxata est; exque eâ plurima putrida et multi muci globi descenderunt; post quæ venter iterum mollis evenit, febris esse defiit, evanuerunt etiam Petechiæ, et cum facilitate urina tenuis et sanæ similis effluxit, sicque secuta integritas et ciborum desiderium est.

Atque hæc præcipua et maximè communis istius morbi causa est: impura scilicet et mucosa illa, quæ in intestinis antè resedit, colluvies; ex qua, siquidem cum suscepto contagio accenditur, febris exardescit."

" The increase in the excretions during the last few days of life, is a very curious occurrence ; and seems to indicate that the fabric is then undergoing more rapid disintegration,—a view which corresponds with the fact, that the bodies of persons that have died of starvation very early exhale a putrescent odour, which is even manifested before death ; as if the solids and fluids were already subjected to those changes, which usually take place some time subsequently to dissolution. It is probable that the colliquative diarrhœa, which so frequently manifests itself at the termination of exhausting diseases, is to be regarded as an analogous occurrence ; and that it is rather the *effect* of the near approach of death, indicating that the organic structure cannot any longer hold together, than the cause of the fatal termination, as it is usually regarded."*

How strange it is that although the same causes have ever produced the same effects, from Cæsar's time to our own, yet experience *does not teach* us to avoid the evil. Ferriar seems to have triumphed in his distinction, without a difference, when he writes, Cæsar does not say (Bell. Civil. lib. ii. cap. xxii.) that the Massilians used putrid food, *but stale and spoilt corn*, at the siege of Marseilles. At the siege of Breda (1627) it is said, " The states of Holland had taken care to provide this city for a siege, with rye, cheese, and dried fish. The cheese and fish had at times been changed but their *stock of rye not for thirty years.* Thus it was become quite spoiled and musty." [LIND. p. 337. See also his excellent account of scurvies in the Russian armies.]

We have a similar cause for scorbutic ulcers and hospital sores at Madras, when the country round was overrun and plundered by Hyder Ally—" So that our supply of fresh meat, much more of vegetables and fruit, was by far too scanty" when " a great number of the rice ships had been lost in the monsoon ;" upon which Madras depended for supply, when famine was abroad in the land. " The miserable natives were daily falling down or laying themselves down, an easy and unresisting prey to it,—in every street, stall and lane about Black Town." (CURTIS' *Diseases of India*, p. 216.) In these cases in India as well as in Arracan, nature when she could not afford vitality to the whole body, wisely abandoned a part to destruction, (mortification of fingers, toes, hands, feet, arms, and legs, &c. and the Doctors sometimes finished her work by amputations, or more frequently in Arracan, by cautery, and the patients lived. Ferriar thought this mortification of fingers a favorable symptom in typhus, and in this sense it was, for the body became *proportioned* to the diminished supply of blood.

If all the varieties of starvation by which the human body is forced to surrender its life, whether by famine, (or no food,) or over work, (excess of expenditure in relation to nutrition) blockade of the nutrient supplies in fever, embargo in various forms of tabes; or when the poor beleaguered city has got them ready at its very gates, they are even then lost, or cut off by aneurismal or other tumours.† If all this were carefully and wisely stated, it would include a

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of the body. Towards the end of life, an increased amount of diurnal loss in weight was observed—a circumstance attributable to the increased amount of alvine evacuations, or even smart diarrhœa which often then occurred. But this increased loss was observed to cease some hours before death, as if the other secretions were suspended like the exhalation of carbonic acid and water."—*Edin. Med. Surg. Journ. Jan.* 1844, p. 157.

* *Forbes'* Journal.

† See obliteration of the thoracic duct (No. 671) which I have described, p. 5.

great portion of diseases indeed, and that too under a proper head, although it be one but little recognised in our nosologies. The ascetic life of religious votaries,* where voluntary starvation is practised, produces the rotten gums, stinking breath and obstinate ulcerations and blotches, which characterise scurvy. Nor is the cloister necessary to its production, hard work, hard fare, and hard-hearted task masters will suffice any where. When the tyranny of man confines his fellows, to unwholesome diet in a prison, we have again presented to us, in jail fever, the same results. Whilst we have seen that even the fierce wars, by which men destroy each other, are far less destructive by the sword, than by the diseases, which want of fresh wholesome food produces. The earth may even be locked up by the frost, as well as the towns by siege, and both prove equally prolific in the generation of scurvy. †

I have adduced at some length these various illustrations of starvation, which I define as want of proper blood, in order to shew the resemblance which they have with each other, in their ultimate effects upon the solids, and their termination in the death of the animal. They are in my opinion very impórtant, for they reconcile the opinions of the ancients with those of the moderns in this instance of splenic scurvy. All that was wanting, was the one grand principle of referring these effects to a want of good blood.

It is unnecessary perhaps, after the cases which have been given by my friend Dr. Green, and that which I myself have recorded, to adduce others in proof of the fact that spleen disease does really produce scurvy. I will very frankly confess however, that this conclusion was forced upon me, before I had read Dr. Green's cases and observations. When I treated the case of Charlton for instance, so complete was the identity of appearance and symptoms, with sea scurvy, that it naturally suggested a trial of the same remedies of fresh fruits, with a success that confirmed my opinion of their identity. I was delighted to find that the extensive experience of Dr. Green had led him to the same conclusion before me.‡

The two cases which I now adduce, not only illustrate the production of scurvy from diseased spleen, but shew in a very striking manner the advantage to he derived, even in the worst cases, from the use of large doses of quinine. The anasarca in both cases disappeared and the symptoms generally improved. Whilst in other instances the disease has wholly disappeared under the employment of this remedy *alone*, which is indeed the most successful by far that I have ever used. I have found half a dram of quinine, given daily to a child of four years old, remove the enlargement of the spleen entirely in ten days. It has the advantage of being perfectly safe in the hands of any sensible person. In one bad case the medicine was entirely administered (and with complete success) by the head master of the orphan school. There is no necessity for debarring children from play and exercise.

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* LIND. † Ibid.

‡ *See* Dr. Green's demonstration of identity, in his parallel of the symptoms, Appendix cccxiii, vol. viii, Part 2, Tran. Soc. Med. Calcutta.

SPLENIC SCURVY—SPLENIC HYPERTROPHY ;—ANASARCA ;—HYDRO-THORAX ; —ASCITES ;—DEATH FROM SPHACELUS OF THE LEG.

(By Allan Webb, Esq.)

Robert Pell, aged 11, East Indian, admitted with tumid belly, dry, harsh skin, bloodless lips and palpebral conjunctiva ; loss of strength and spirits, (often crying) and a large spleen, reaching a handbreadth below the ribs.

March 18th.
Ferri Carb. gr. xv.
Pulv. Rhei. gr. iii.
Soda Carb. gr. v. bis die sum.

March 8th 1844. Repeated leeches and blisters, Twining's spleen mixture, &c. were tried, and by the 17th the spleen was much reduced. The poor boy was anxious to return to his mother at Chinsurah, and had permission to do so, when this only friend in the world, was carried off by cholera. The boy became silent and reserved, and the spleen enlarged again. He was ordered as per margin, and continued the use of this powder, and of acid fruit, until April, without any benefit whatever, indeed his legs now became anasarcous.

April 2d.
Spleen mixture with garlic and aloes.
June 5th.
Quinini gr. viii ter die.

This produced no good effect, nor did occasional leeching and blisters ; it was given up on the poor little fellow begging hard to try some native medicine, (a very bitter mixture, of which I do not know the composition.) He improved somewhat by it and we thought the spleen less. It was only temporary improvement ; the anasarca again increased. I began to treat him with large doses of quinine (after M. Bally's plan.) On the 11th of June he was taking half a dram daily, and the benefit was great, and immediate. The anasarca had wholly disappeared, and the spleen was reduced one half, in six days, it had become moveable, and the belly had receded. The boy began to recover his strength and spirits. He continued the medicine until

June 25th.

He was then attacked with ardent fever, the spleen again enlarged, the right leg began to swell and to shew petechiæ and blotches ; then the same appearance in the left, whilst by the 3d day

June 28th.
June 30th.

The boy was delirious, the left leg tense and shining and dusky red, and hot and painful (pain relieved by leeches), a large black spot about the middle covered with a large bulla or blister, clearly shewed that gangrene had taken place. The boy died June 30th.

Post Mortem Examination.

External appearance.—Right leg black half way up, and livid patches as far as the groin. The left had many dark blotches also.

Head not examined.

Chest, on being opened, presented a singular appearance, from the blanched state of the lungs, like those of a slaughtered lamb ; greenish effusion of serum in both pleura, about twelve ounces in the right, transparent jelly of greenish color, about as thick as the child's hand and as large, was found on the diaphragm. Heart small, pale, nearly empty.

Abdomen presented the same bloodless appearance, excepting liver and spleen; spleen very large, and curved round under the ribs, covered with patches of lymph, adherent to the stomach and kidney. Omentum shrivelled up. Liver enlarged, with numerous white looking islands; when cut into, these white portions, seemed to ooze out more freely than any other part, a pale yellow bile, such as was found in the gall bladder; mesenteric glands appeared healthy; serous effusion in most dependent parts of abdomen, and in the pelvis.

Remarks.—Would have been cured in all human probability, but for the supervention of the fresh attack of catarrhal fever (then prevalent) which came on, on the 25th.

SPLENIC SCORBUTUS; EPISTAXIS; LIENTERY, ANASARCA;—HYDRO-THORAX,&c

(*By Allan Webb, Esq.*)

Hannah Hallum, an European child, aged 6 years, in hospital June 1843, with cynanche parotidea (mumps,) again in July 1843, from 1st to 8th with fever.

September 1st.	Admitted with intermittent fever and spleen disease. Leeches every other day, blisters, and spleen mixture of aloes and garlic, were of little use.
September 19th.	Had quinine in four grain doses three times a day.
October 19th.	Discharged; scarcely perceive the spleen enlarged now.
November 20th.	Re-admitted, spleen enlarged again, has paroxysmal fever. Leeches every other day, with purgative splenic mixture.
December 27th.	Blisters kept open, omit leeching.
March 13th. P. Rhei. P. Zingib. Sod. Carb. a. c. gr. iii. Ferri Carb. gr. xv. m. Ter. die. s.	Sent home to her parents for change; when she returned there was the crust of an issue formed in her left arm, by a fakeer (who practises on Alipore bridge.) His patients come only at night, "That hour of night's black arch the key-stane. That weary hour," is most propitious. Yet he has the reputation of curing multitudes at the low rate of five pice apiece (about 2*d.*) But he failed here, and poor little Hannah returns with the same anxious dispirited, inquisitive, half suspicious look;—the same emaciation, blackness under eyes, restlessness, weariness, weakness:—the same dry, hot, harsh skin, quick pulse, and daily fever which she had before, and which characterises the hectic of spleen disease.
March 26th.	Same state; the medicine produces two or three stools in 24 hours; looks much better.
April 15th. Leeches iii.	Palpebral conjunctiva much redder.
May 16th. Leeches ii to the spleen.	Still getting thinner, and weaker and more bloodless. Purple blotches appearing about the legs and shoulders, has short dry cough, clavicles sticking out, anasarcous swelling of the legs.
June 2nd. Quinine in large doses.	No improvement whatever (*see sketch.*)

June 3d. Quinine,gr.viii.ter die.	Had a great number of stools, and the spleen is much smaller. Had increased doses (ten grains) when fever came on and the purging.
6th. Quinine gr. x. ter die.	Is very thin, and emaciated from the absorption of the water ; has had five or six stools a day since she took quinine. The echymosis has disappeared almost ; spleen much smaller, feels hard, about the size of a fist.
8th. Pt. Leeches iv.	Is very much emaciated, but the spleen has reduced one half, frequent stools, and fever is almost constant.
11th. Pt.	Excepting for the excessive emaciation the child is every way better ; swelling of legs, spots and blotches all gone ; no diarrhœa.
July 12th.	The spleen is very much less, indeed hardly to be felt.
13th. Beer half a pint daily.	Much thinner and weaker. *Bleeding frequent from nose*, and severe hectic paroxysms in evening.
20th.	The child is as much emaciated as it is possible to conceive, the livid purple blotches are large again in the leg. Hair all dry, appetite good, bowels loose.
24th. Pt.	Is nothing but skin and bone, bleeding frequent from the nose ; a large black spot appearing on left nostril ; large diffuse patches of echemosis wherever there is pressure ; spleen is now much enlarged again. Gave a spoonful of brandy twice or three times a day.
25th.	Child sitting up and talking in morning, sunk into stupor and died very quietly about 12.

Post Mortem Examination.

General appearance.—Extreme emaciation ; skin wealed and blotched, and discolored by livid effusions beneath.

Head.—Not examined.

Chest.—Viscera bloodless, serous effusion into both pleura, and also into pericardium.

Heart.—Empty, lungs white.

Abdomen.—Liver enlarged greatly, and whitish ; yellowish islands with an appearance of dilated vessels in its structure ; spleen enlarged twice. Other viscera, as omenta, large and small bowels attenuated, thin and diaphanous ; marks of healing and healed ulceration in the large bowels, mesenteric glands red ; slight serous effusion into the abdominal cavity.

Remarks.—The child improved greatly under the large doses of quinine, but this was too late resorted to.

Two other boys, so exactly resembling these two cases, in the symptoms during life and appearances after death (it would be useless to give the full cases) have died of the same disease at the Lower Orphan School hospital. One was complicated with worms, and proved fatal by these parasites eating through the cœcum. It will be detailed in another place.

Van Swieten long ago declared that the ancients had described the scurvy when treating of spleen disease. No one can read the description which Hippocrates has given of spleen disease without being struck with its application to scurvy. Especially the third variety, of which he says, " morbus majis lethalis est quam prioris, et ex ipso pauci effugiunt."* A melancholy truth indeed.

Lind, in his most excellent work, with considerable labour and learning endeavours to shew that the descriptions of Hippocrates are inapplicable to scurvy. Yet in his "Bibliotheca scorbutica" he records the opinions of the earliest European authors, to the effect that scurvy is dependent upon the spleen. For instance, he mentions "Echthius's epitome as being the first wrote" (in 1541.) Here he says, it is proposed as "a question, whether the blood here may not be corrupted, without the spleen or any other viscera being affected?" "But the author is inclined to think the spleen often is." Both the one and the other of these propositions are true I believe, and capable of being explained in a way which also reconciles with each other the observations of both ancient and modern authors upon the subject. Again in the Bibliotheca, he says of Rousseus, who wrote in 1564—"From a mistaken theory in judging it a disease of the spleen he begins the cure by bleeding." Forestus again, who wrote in 1595, observes that "he has known many fall into the scurvy *after intermittent fevers.*" He makes it a "disease unknown to the ancients, though according to his theory a *disorder of the spleen.*" Riverius says that scurvy until his time had always been considered a spleen disease†. Pitcairn says, what the ancients called *Lienositas*, the Germans now cal lscurvy. 3rd. Edit. (1691) p. 260.

But it is the especial object of the task I hav eundertaken to investigate disease by anatomy; now the anatomy of scurvy as given by Lind, will shew a very striking analogy with that of the cases here given, and will also justify the consideration here given to disease of the blood or humoral pathology; for we see it can fully explain every form of destruction in all and every tissue of the body. And consequently saves the necessity of treating each of them in detail as would have otherwise been expected.

No. I. Anatomy of the blood in scurvy. See Cases, p. 174.

"1. In the beginning of the disease, the blood, as it flowed out of the orifice of the wound, might be seen to run in different shades of light and dark streaks. When the malady was increased, it ran thin, and seemingly very black; and after standing some time in the porringer, turned thick, of a dark muddy colour; the surface in many places of a greenish hue, without any regular separation of its parts. In the third degree of the disease, it came out as black as ink; and though kept stirring in the vessel many hours, its fibrous parts had only the appearance of a quantity of wool or hair, floating in a muddy substance. In dissected bodies, the blood in the veins was so entirely broken, that, by cutting any considerable branch, you might empty the part to which it belonged of its black and yellow liquor; and when found extravasated, it was all of the same kind. *Lastly*, As all other kinds of hæmorrhages were frequent at the latter end of the calamity, the fluid had the same appearance as to colour and consistence, whether it was discharged from the mouth, nose, stomach, intestines or any other part."

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* In the small Edit. of Hippocrates published at Leyden in 1564. This is styled in the margin LIENIS TERTIUS MORBUS, and is as follows:

"Alius splenis morbus fit, in anno, veris maxime tempore, verùm à sanguine. Quum enim repletus fuerit splen sanguine erumpit, in ventrem, et dolores acuti in splenem incidūt, et in mammam, et in clauiculam, et in humerum, et sub scapulam. Dolor autem corporis est plumbiformis, et parua vicuscula velut lancinata in tibiis exurgunt, ex quibus vicera magna fiunt, et quæ primùm infrà secedunt sanguinolenta sunt, et æruginosa, et venter durus subit, et splen velut lapis est, hic morbus magis lethalis est quàm priores, et ex ipso pauci effugiūt." *De Internis Affectionibus*, p. 216.

† Fol. Edit. 1669. Lib. xii. de Affect. Lienis, cap. vi.

No. II. Softening and disorganization of the heart, lungs, and spleen. Cases pp. 173, 174.

"2. The heart was found white and putrid; its cavities were quite full of corrupted blood. The lungs were blackish and putrid; more than a quart of reddish water was found in the *thorax*. The liver was pretty sound; but the spleen somewhat corrupted, and rough as if it had been rubbed against a stone."

No. III. IV. Hydro-thorax, ascites, anasarca. Cases pp. 154, 182, 183.

"3. All those who had any difficulty of breathing, or their breasts stuffed or stopped up, had there a quantity of *serum*; and we found more or less of it according as they were oppressed.

"4. The breast, belly, and several other parts of the body, were filled with this lymph or *serum*; which was of different colours; and so corrosive, that having put our hands into it, the skin of them came off, attended with heat and inflammation."

No. V. VI. Adhesive effusion in the chest, and asphyxia. Cases pp. 184, 182.

"5. We have seen some whose breasts were so oppressed, that they died all of a sudden. In the mean time, we found no *serum*, neither in their breasts nor in their lungs. But the *pericardium* was entirely fastened to the lungs; and the lungs were glued to the *pleura* and *diaphragm*. All the parts were so mixed and blended with each other, that they made up but one mass or lump, so confounded that one could scarce distinguish one from another. As the lungs were squeezed together in the midst of this mass, they were deprived of their motion, and the sick person was choked for want of breath.

"6. All they who died suddenly, without any visible cause of their death, had the auricles of their heart as big as one's fist, and full of coagulated blood."

No. VII. VIII. Ulcers, of skin and mucous membranes. Cases pp. 185, 152, 182, 184, 174, 173; *also plate of cancrum oris.*

"7. We have seen several, who without pain dropped down dead. They had no apparent sickness; only their gums were ulcerated, without any spots or hardness on their skin; yet we found their muscles were gangrened, and stuffed with a black corrupted blood; and upon handling them, they fell to pieces.

"8. A youth of ten years had his gums much swelled, and deeply ulcerated; his breath intolerably stinking. The surgeon was obliged to pull out all his teeth, for the better dressing of his mouth. There appeared afterwards ulcers upon his tongue and cheek. He died all of a sudden, and his bowels were found corrupted."

No. IX. X. XI. XII. Typhoid characters, bubos, extravasations of blood, vibives, eschimoses, &c. Cases pp. 152, 182, 184, 174, 173.

"9. Some with no other symptoms but slight ulcerations of their gums, had afterwards small red hard tumours on their hands, feet, and other parts of their body; after which there appeared imposthumens in their groin, and under their arm-pits, together with blue spots on their body. We found the glands under their arm-pits very big, and surrounded with matter; as well as the muscles of their arms and thighs, whose interstices were all filled with it.

"10. We observed some whose arms, legs, and thighs, were of a reddish black. This proceeded from that black and coagulated blood which was always found under the skin of those persons.

"11. We also found their muscles swelled and hard. This was occasioned by blood fixed in the body of the muscles, which were sometimes so full of it, that their legs remained bent, without being able to extend or stretch them out.

"12. The blue, red, yellow, and black spots, which appeared on the body proceeded purely from extravasated blood under the skin. As long as the blood kept its red colour, the spot was red; if the blood was black and coagulated, the spot was also black, &c."

No. XIII. Ulcers. CASES pp. 152, 173, 174, 183, 182.

"13. We sometimes observed certain small tumours, which, upon breaking formed scorbutic ulcers. They proceeded from the blood, with which the tumour was filled; for as often as we took off the plaister, we still found under it a great deal of coagulated blood."

No. XIV. Epistaxes, hematemesis. CASES pp. 152, 183.

"14. Some old persons have such large bleedings from the nose and mouth, that they died of them. The coats of the vessels were corroded and eat through by the sharp and corrosive humour.

No. XV. XVI. Dissolution of bones (plate.)

"15. In some, when moved, we heard a small grating of the bones. Upon opening those bodies, the *epiphyses* were found entirely separated from the bones; which by rubbing against each other, occasioned this noise. In some we perceived a small low noise when they breathed. In those the cartilages of the *sternum* were found separated from the bony part of the ribs.

"16. All those in whose breast any matter or *serum* was found, had their ribs thus separated from the cartilages, and the bony part of the rib next the *sternum* carious for four fingers' breadth."

No. XVII. XVIII. Destruction of Ligaments (plate.)

"17. There were some dead bodies, in which, if we squeezed, betwixt two fingers, the end of the ribs which began to be separated from the cartilages, there came abundance of corrupted matter. This was the spongy part of the bone: so that, after squeezing, there remained nothing of the rib but the two bony plates.

"18. The ligaments of the joints were corroded and loose. Instead of finding in the cavities of the joints the usual sweet oily mucilage, there was only a greenish liquor; which, by its caustic quality, had corroded the ligaments."

No. XIX. XX. Tuberculated mesenteric glands, liver, kidneys, and lungs, dissolution of the spleen. CASES pp. 173, 174.

"19. All the young persons under eighteen had in some degree their *epiphyses* separated from the body of the bone; this water having penetrated into the very substance of it.

"20. In scorbutic people the glands of the mesentery are generally obstructed and swelled. Some of these were found partly corrupted and impostumated. In the liver of some few, the matter or corruption was hardened, and, as it were, petrified. Their spleen was three times bigger than natural; and fell to pieces, as if composed of coagulated blood. Sometimes the kidneys and breast were full of imposthumes."

No. XXI. Sound brain, in nearly all the Cases.

"21. What was very surprising, the brains of these poor creatures were always sound and entire, and they preserved their appetite to the last."

Besides this admirable summary of effects upon the solids, I observed in the prisoners employed upon the Burdwan road, a melancholy variety; numbers had ulceration of the cornea, quite uncontrollable, and the humours were evacuated with irrevocable destruction of the organ of sight: others had their cheeks sloughed away, and one or two cases of sloughing of the lungs were seen. (gangrene).

VOMITING OF BLOOD.

The frequent occurrence of this lesion in connexion with spleen disease has given rise to much discussion as respects the manner in which it is to be explained.

In such a case as No. 1, p. 173 this would be easily accounted for; but in many others, in which this has been a prominent symptom, no such ulceration is found, and the distended vessels are probably relieved by transudation through the capillaries, as occurs in the bronchi. The blood is dissolved in most cases and the vessels lose their vital tonicity. Formerly no one doubted, of a direct vascular canal, carrying the peculiar secretion elaborated in the spleen, to the cardiac orifice of the stomach. This doctrine which originated with Galen, continued to be taught in the schools of medicine, until it was refuted by the anatomical researches of Vesalius in 1550.

But although Vesalius, in a modest and temperate manner, declares that there is no large vessel running from the spleen to the upper orifice of the stomach, as was so confidently asserted by others; and although he has really given a most excellent account, and characteristic delineation, of the distribution of the feeders of the vena portæ;—yet being unacquainted with the circulation of the blood, he is led into the strangest errors. He seems to think that there were two currents going on in the vena porta; one bringing down the blood from the liver, to the spleen and intestines; and another current carrying it up again. He did not doubt, but that branches of the porta brought the feculent blood from the liver to the spleen, part of which was retained for the nourishment of the spleen, and part being unfit for such purpose, was poured into the stomach,—but how did it get from the spleen to the stomach? that was the question. In this mighty controversy Vesalius was a "*Big-Endian*" and insisted, that the professors of anatomy were wrong, in saying, that the vessels were directed from the spleen to the upper orifice, instead of, as he demonstrates in his plate, to the fundus of the stomach. "The other branches of the porta being distributed," he says, "partly to nourish the stomach and intestines, and partly to suck up the aliment, and convey it for concoction in the liver."* He tells us in another place,† that like as the gall bladder receives the more rarified and thinner parts, so the thicker and heavier products, of the concoction of blood in the liver, are sent to the spleen. Notwithstanding these mistakes of the times in which he wrote, his plate of the vena porta is the best I have met with, and will very well enable one in the absence of a preparation, or demonstration, to understand the great congestions which these vessels must undergo in obstruction of the liver and spleen.* Such acquaintance with the relations of these vessels is absolutely necessary to a right comprehension of this associated lesion, so very common in spleen disease, and so rarely leaving any traces to point out whence the blood came.

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* And. Vesalii, de Corp. Humani Fabrica. Lib. iii. cap. v. p. 318.

† Ibid, Lib. v. cap. ix. p. 439.

Among the many cases of blood-vomiting, in which the most careful research after death, has not shewn any palpable lesion, such as ulceration or laceration in the stomach or duodenum, which could have furnished the blood; the very interesting case of the flax-dresser related by Morgagni is most prominent.† Van Swieten in his excellent commentaries, shews how an obstruction to the passage of blood through the terminal branches of the portal vein (on its way to the hepatic, and the cava) may cause a regurgitation through the *biliary vessels*, so that blood may be found in the gall-bladder and duodenum, whilst from them it may pass upwards to the stomach : or downwards to the intestine. He gives an instance—“Thus I visited a man, who, after great anguish about the prœcordia, and a troublesome heartburn, had a vomiting of blood, which was soon followed with a copious discharge of blood likewise, by stool ; whereby he expired in a few hours. Together with some friends skilled in anatomy, I made a diligent scrutiny into all the abdominal viscera of this deceased person ; and yet we were not able to find one broken vessel, nor any very apparent defect in any other viscera.”*

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* Another very good plate is seen in Sir Charles Bell's "Dissections," part i, plate iv. But by far the most excellent representation which I have met with, is in Weber's Atlas. XVI. Tafel, fig. ii. Zweige der Pfortader, (vena portarum)—said to have been taken from the Icones Anatom. of Caldani.

† VOMITING OF BLOOD FROM ENLARGED SPLEEN.

"A young man of about twenty years of age, having, from an original strength, and firmness of constitution, degenerated into the state of a valetudinarian, for two years past, attributed this change in his health to hunting, and dancing, and to other things of that kind, which he had indulged himself greatly in the practice of, and to the effect of the business by which he earned his livelihood; for he was by trade a flax-dresser. He was become pallid in his countenance, complained, according to the custom of hypochondriac persons, of slight disorders of the belly, and thorax, which recurred now and then. At length, in the summer of the year 1688, a large and hard tumour discovered itself in the left hypochondrium, with a sense of weight, and a difficulty of respiration in walking. To these symptoms was, suddenly, added a large vomiting of blood, with a great loss of strength, an increase of tumour, and a fever. By the assistance of remedies he was freed, on the first day, from the vomiting, and after that from the fever; and having used chalybeates for the three succeeding months, the hardness of the tumour was also removed: yet it continued equally large, with a pallid, and, as it were, almost citron colour of the countenance.

"But in the month of January, the vomiting of blood returning two or three times, he was seized with a violent fever, attended with hard and quick, though at the same time, small pulse, a pain, weight, and tension, of both the hypochondria, and an inextinguishable thirst. However, on the ninth, or eleventh day, of the fever, he was taken off by a very placid kind of death.

"The body being dissected, it was amazing what a small quantity of blood remained in all the vessels. And, for this reason, the viscera of the belly attracted the eyes by an unusual paleness, and almost whiteness, except the spleen which preserved its natural colour; but this viscus was so much increased as to exceed the liver in bulk, and weighed four pounds and a half. Yet it was not harder than it generally is, except that on its convex surface, in one or two places, was contained, deep within its surface, a substance of a very solid nature, of the bigness of a large nut. In the trunk of the splenic vein, polypous concretions lay hid, which divided themselves, together with the branches of that vein, in a very elegant manner, even within the spleen. The liver was very pale, except that here and there it was marked with black spots. The gall-bladder, which was more pale than the liver, and even whitish, contained a little bile of a very dilute colour, a similar bile to which was not wanting in the fundus of the stomach. The other parts of the belly were sound.

"In the thorax the lungs on their anterior surface were pale; but on the back part they appeared inflamed, and were of a black colour, inclining to purple: but, when cut into, they discharged a great quantity of frothy serum. In the right ventricle of the heart was only a small polypous concretion; and in the left only a beginning thereof." Epist. xxxvi. n. 11.

Among other valuable cases for which I am indebted to the Medical Board of Bengal, the following by the lamented Mr. Twining, is of great interest, and has especial reference to this subject.

VOMITING OF BLOOD, LIENTERY—SPLEEN DISEASE.

1st January 1833. Pulv. Rhei. Pulv. Zingiberis.a a ℈ss.“every morning” Tinctur. Opii. ʒi. Aqua. Fontis ℥ii. ♏. ft. Enema h. s.	H. Butler, æt. 37, pauper, admitted 31st December 1832. An emaciated man, eight years in India ; ill three months with Diarrhœa, no Pyrexia at present; tongue clean and moist, goes to stool twenty times every night ; had Pulv. Doveri and five grs. ginger last night : stools of pale yellow colour, and watery ; not very copious.
2nd.	Repeat as yesterday; 3d and 4th also.
7th January. Magnesiæ sulphat ℥i. Aquæ Fontis ℥xx. Acid. sulphuric. dilut. ℥iss. misce.	Seized with vomiting of blood in the night and is now vomiting small coagula, with fluid blood in small quantities and with very little effort.
Sig. “half an ounce every half hour.”	Died in the afternoon at 7 o'clock.

Dissection thirteen hours after death.

Subject much emaciated ; a few old adhesions in the right side of the chest. *Liver* indurated, small and of darker colour than usual. *Spleen* large and hard, closely adherent to the great extremity of the stomach; numerous mesenteric glands enlarged and indurated. There was about 3½ ounces of fluid blood in the stomach, besides some small coagula. The vessel from which the blood had been effused could not be discovered.

Morgagni alluding to the account of Van Swieten, and commenting on the case of the flax-dresser, shews how obstruction to the spleen, with diminution of its capacity for receiving blood from the splenic artery, may send more blood through other branches of the celiac artery : whilst obstruction of the splenic vein, or veins returning blood from the stomach (owing to enlargement and pressure of the spleen) would cause congestion, effusion and vomiting of blood (by transudation from the capillaries). He carefully analyses the cases recorded in the Sepulchretum. He only credits one instance of a vessel being *found open* into the stomach, written by Riolanus, for in this case the "vas-breve was dilated to the thickness of the finger" in a man, who died of spleen disease and vomiting of blood. In illustration of the fact that blood may be transmitted through the hepatic ducts, he cites a case from Budaeus. "A woman after having vomited a great quantity of matter similar to grumous and corrupted blood, although she had the vas-breve full of the same kind of matter, and almost equal to the finger in thickness, yet the substance of the stomach was without any very conspicuous veins, and the *gall bladder was enlarged and turgid with the same matter*, so that it was easy to perceive from whence this matter had come into the stomach which even then contained a large quantity."*

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* Commentaries on Boherhaave by Baron Van Swieten, Edin. 1786, vol. ix. p. 231.

In a very remarkable and instructive case, recorded in that valuable periodical, the Madras Quarterly Journal, an officer who had recovered from abscess of the liver by puncture, again became subject to it, and died in consequence : having had vomitings of coagulated blood, of fluid like "coffee grounds," the same having been passed in his stools.

Blood was found after death in the abscess—"The gall bladder though healthy in structure was distended ; on being opened, it contained *a quantity of firmly coagulated blood floating in a dark fluid*" *similar to what had been voided from the stomach and bowels during the last few days.*" Both the accomplished surgeons, the editors of that Journal, (Drs. Rogers and Lorimer,) were of opinion "that the only way the hemorrhage could be accounted for, was that it had passed through the biliary ducts and thence through the ductus communis." The spleen was in this case enlarged and hardened.†

The reciprocal action of obstruction in the liver and spleen ;—in producing hemorrhage into the stomach, is well explained by Portal. If the liver be obstructed (in scirrhosis for instance) there is a reflux to the spleen, with distension ; if the spleen be impervious, the tide is turned upon the liver, a varicose state of the portal feeders takes place—they cannot get rid of their blood, so fast as it is sent by the arteries, and extravasation results.‡

I was lately called to see the servant of my friend Col. P———, who had been, it was said, vomiting some *seers* of blood. As regards quantity it bore some analogy to the celebrated case of the "three black crows," in so far as the whole amount shewn to me, would not exceed four ounces. However it recurred frequently, to the extent of two or three ounces, for the following day and night, and was checked at last, by the use of ice, internally, and of opiates. *His spleen*, which had long been enlarged, was *now found to have completely subsided.* The man, however, a Mussulman-Kansamah, probably used to good living, became weak and anasarcous ; and was sent to his own Zillah, at, I believe, Chittagong.

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* It is not easy to determine, what is intended, by the term *vas-breve.* In some works the splenic vein is so called. But the "*vena gastro epiploica sinistre, splenica continua,*" (marked f. in Weber's Atlas, of "Zweigeder Pfortader, fig. 11, p. 131) is probably the one alluded to ;—and is evidently that which Vesalius regarded as the chief communication between stomach and spleen. Haller refers to this plate of Vesalius. He says "Inter eas princeps aliqua, *Epiploica, Sinistra*, vel ex lienalibus etiam nata, &c." LIEN. *Sect.* i. *Fabrica* Elementa Physiologiae. Albert. Haller, Bernae 1764. In the "Anatomie descriptif" of Jules Cloquet—(explication des planches, Tom. iii. p. 386)—Planche 250, it is fairly delineated, as anastomosing both with distinct veinules coming from the spleen, and also with the *venæ breves ventriculi*, it is marked 31.

In this way may be understood "the remark of Alverda, that by pressing the spleen (in the case of Cardinal Cibo) the stomach was filled with blood, which was carried thither by the vas-breve."

† Madras Journal, vol. iv. p. 397.

‡ Obs. sur la Nature, &c. des Maladies *du* Foie, par Antoine Portal, p. 562. Paris 1813.

I remember being called to a remarkable case in London also, where a servant maid had been suddenly attacked with vomiting of blood, which persisted in spite of all efforts to check it. And after lingering for awhile in a state half-dead-and-alive, she died. The stomach was found so accurately distended with blood, that no cast could have given a truer idea of the organ in its distended state. About the centre of the large curvature, a small ulcer existed, such as might have been punched through its coats, and those also of the splenic artery. Hence the blood had proceeded. There was no other disease whatever, so far as I remember.*

Bartolinus mentions an interesting case, which occurred in the person of one of his own relations, of vomiting of blood to an enormous extent ; owing to indurated and enlarged spleen. The tension of left hypochondrium, and elevation of the spleen returned, but there was a relief to all suffering, until the blood had again congested the spleen. At length when sixteen pints had been evacuated in three days, and the patient reduced to the pallor of death itself, the tumour subsided, the strength returned, and patient recovered.† (Bart. Hist. Anat. Rar. Hagæ. Comitis, 1657.)

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* Tulpius mentions a case of transudation of blood to an alarming extent through the skin in a virgin with indurated spleen. (Observ. Med. Lib. ii. cap. xxxi.) Avicenna speaks of enlarged spleen terminating by epistaxis, and also by the discharge of bloody urine, which indeed is spoken of by Hippocrates and Galen.

† Thomæ Bartolini (Hist. Cent. iv. Historia lx. *lien indurat.*) This must be the same case recorded (cent. i. Historia lxxxvii.) *vomitus sanguinis in spleneticus*, beginning, " Splenelicus intima mihi et nativa amacitiâ conjunctus," &c.

Another very remarkable case (see Historia lxxx.) is given by Bartholinus, as follows .

SPLENETICI ANATOME.

" Petrus Andreæ Abelgaard Vir cælebs, rufus, trigesimum ætatis annum, supergressus portæ Boreali vicinus, sinistri lateris dolore et tumore multorum annorum decursu emaciatus, Icterico haud videbatur absimilis. Ciborum erat appetens, sed urinæ laborabat difficultate. Consilio plebejorum amicorum potu liberaliori ægritudinem molestam depulsurus, sex cerevisiae pottas uno spiritu eduxit, unde nigræ materiæ supervenit vomitus, quem æquo excipiebat animo et fidenti, ratus cognitā hinc morbi causa, facilem Medecis patera viam ad curandi methodum. Sed sensim triduo elapso mortalitatem exuit. Ante fatalem halitum ob sphincteris vesicæ resolutionem, urina antea parca, copiosē et sine, difficultate effluxit.

Postridie mortis, nempe 21, Jan. currentis anni 1653, consensu amicorum et splenetici ultima voluntate, cadaver aperui, præsentibus *D. Simone Paulli*, *M. Lysero*, *Iacobo Holstio*, *Henrico Mratino á Moinichen* Medicinæ candidatis, aliisque. Quæ præter solitum visebantur, hæc erant :

1. Omentum exile, Mesenterium pingue satis, intestina tenuia flavo colore tincta omnia. Hepar a rubore naturali parum deflectens.
2. Vesica bilaria pallida, tunica crassiori. In apertà serum nudum nulla bilis tincturâ Plena quoque grumis nigricantibus, lapillisque pisorum magnitudine, qui viam obstruxerant quo minus bilis hac expurgaretur, adeoque in corpus universum repulerunt.
3. Lien insolitæ molis, longitudine duarum spithamarum, sinistrum suprarenem ad os usque Ischii, ejusque cavitatem extensus. Pondus quatuor libras æquabat civiles. Color varius. Albicabat qua parte costas attingebat, tunica crassissima candida, corio bovino similis, ut levi operâ manu separari ā parenchymate potuerit, et exsiccari. Exsiccata autem tunica quam in Musæo asservo, glutens siccum per omnia refert. At illa

SPLENIC ABSCESS.

I will now consider another consequence of inflammation of the spleen—that is, its termination in abscess, an instance of which we have in No. 649.*

The number of morbid specimens of this organ, which we possess, is in no wise commensurate with the importance which attaches to the pathology of the spleen, nor with the opportunities which we possess in India, of observing its diseased conditions. Indeed the whole of them were collected during the last two years. Want of information among the College Students, as to what really is rare and valuable in pathology, has alone prevented the addition of three other specimens of splenic abscess; which they have assured me, were found in the dissecting rooms, during this period.

And yet, strange as it may appear, the very occurrence of such a termination to inflammation of this organ, has been quite overlooked, or unknown, or called in question, by some of the latest writers upon this subject, both in India and also in Europe. Mr. Twining's enumeration of its morbid conditions, contains no mention of abscess,† whilst M. Pinel in his "Nosographie Philosophique," seems to doubt of the possibility of inflammation running on to suppuration of the parenchyma of this organ.‡

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parte quæ corpori obversa erat, membrana subtilior nigricabat. In ipsa substantia steatoma erat, infarctum, adiposa materia constans, nucis magnitudine. Parenchyma reliquum satis sanu. *Columbus* l. 15. Anat. quoque vidit lienes XX lb. pondere, quos cartilago exterius obvolvebat.

4. Adhærebat lien firmissimè diaphragmati, ut difficulter separari potuerit, unde spirandi difficultas, quam ambulaturus fuerat expertus.

5. Vas breve varium, nam quatuor venæ amplæ ex ramo splenico tumido prope lienem productæ, in ipso ventriculo longius protensæ sanguine scatebant. *Hinc vomitus ille niger plerisque spleneticis*, huic homini familiaris.

6. Pancreas sanum. Vicina huic erat glandula parenchymati lienis similis, quam lacteam in sanis fuisse credo.

7. In abdominis cavo seri cruenti portio quædam.

8. Renes utrinque nigricantes, intus nihil monstri alebant. Dexter hepati per peritonæum adnatus, sinister lieni eodem modo subjectus. In pelvi sinistro parum hærebat puris.

9. Reclinatis intestinis et retractis investigaturi in alveo vesicam urinariam, prima fronte vidimus nullam. At separatâ peritonæi duplicaturâ prodiit post cataracta latens. In ipsa enim duplicaturä, ubi libera solet habitare, ab omni parte peritonæo accreverat, Unde tunica propria membranosa potius quam carnosa, expellere urinam vix potuit.

10. In thorace et pericardio moderata cruenti seri copia. Cor totum quasi adipe obsitum molliusculo, serum biliosum continente. Pulmones liberi quidem ä costis, sed candicantes et exsucci." (Bart. cent i. p. 115.)

* See cases of Splenic Abscess, pp. 151, and 152 of this work.

† Transactions of the Calcutta Medical and Physical Society.

‡ "On ne peut point sans doute se refuser d'admettre des inflammations superficielles de la rate, c'est-à-dire, qui affectent la partie du péritoine qui la recouvre (*Dissert. déjà citée*); mais le tissu même de cet organe peut-il-être affecté d'un véritable phlegmon, comme le foie ou les reins, et ce phlegmon peut-il passer à la suppuration ? En supposant même cette affection aiguë, *est-elle démontrée par une autopsie cadavérique non équivoque*, et connaît-on la série successive des symptômes qui l'accompagnent ? Ce sont là des objets sur lesquels je pense que l'observation n'a point encore prononce, de manière à lever toute espèce de doute, ou du moins *les écrits qu'on a publiés jusqu' à ce jour sont encore loin de faire cesser toutes les incertitudes*, quoique la structure intime de la rate semble la rendre sujette aux mêmes inflammations que les autres viscères, puisqu'il entre dans sa composition des vaisseaux sanguins et capillaires, et du tissu cellulaire. Cette lacune en médecine, qui ne peut être bien remplie que par une série

And this too, notwithstanding that one of the earliest cases of splenic abscess and most extensive upon record, is found in the History of that very Royal Academy of Sciences *at Paris,* of which he is so distinguished a member; and had been cited by Morgagni half a century before M. Pinel published his work.* Another case by De Haen, recorded in the excellent commentaries of Van Swieten, has nothing equivocal in either the symptoms or autopsy, and is unique in respect of the metastases of purulent matter from the spleen to other organs,† a peculiarity of splenic suppurations first noticed by Avicenna, as we shall presently see. (p. 201.)

Seeing these mistakes of other writers, I have been led to search the old fathers of medicine, and fully appreciate now the valuable remark which Van Swieten makes upon this very case of De Haen's. Van Swieten says—"Nothing can give a better invitation for physicians to make diligent researches into the writings of the ancients, than the repeated lights which their observations reflect upon the most difficult cases; since it is experienced that hardly any thing difficult or doubtful can occur in practice but they have something to say upon it."

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nombreuse de faits, et par une distinction des inflammations aiguës et chroniques de ce viscère, exige un médecin observateur très-exact, et favorisé par une position local qui donne lieu à suivre la marche d'un grand nombre de fièvres intermittentes avec des gonflemens consécutifs de la rate. Il serait nécessaire en outre que, dans des cas funestes, l'autopsie cadavérique pût faire ajouter le dernier degré de complément à l'histoire de la maladie," (Nosographie Philosophique, Paris 1818, tom. ii. p. 501.)

* ENORMOUS ABSCESS OF THE SPLEEN, TWICE OPENED WITH TROCAR.

"The tumour of the spleen is also deceptive, when it extends itself greatly; or when it contains what it is very rarely wont to contain. And an example of both these states taking place, at the same time, in one and the same man, you will have from the History of the Royal Academy of Sciences at Paris.

"For he being seized with the signs of an ascites; among which was a very manifest fluctuation of a fluid in the belly; and having twice undergone the operation of paracentesis, and had pus drawn off instead of water; and having died the day after the second operation; had the spleen enlarged to such an enormous size, that reaching from its natural seat to the bones of the pubes, it covered the viscera before and on the sides, and compressed them all, in consequence of its containing as great a quantity of pus, as had been drawn from the living body; and a very great quantity had been drawn.

"That pus indeed, as well as water, has been sometimes found in the spleen, I have taken notice to you before; but I do not remember that it has been ever found in such an immense quantity. In so great an extension of a viscus, which is not large, and a sensation of a fluctuating fluid, who would have blamed the spleen in particular? The seat of the pain, except in the beginning perhaps, could not have shown this.

"For the violent colic pains which had at length come on, could not be confined to that one part of the belly only; as they certainly were from the compression of the intestines. The only circumstance from whence a suspicion might arise, was, that the disorder had succeeded a quartan fever, which lasted eighteen months or more."

Morgagni translated by Alexander, vol. iii. p. 528.

† ABSCESS OF SPLEEN—METASTATIC SUPPURATION.

"The celebrated Dutch physician of the Hague, Dr. Antony de Haen, (to whom I gratefully acknowledge myself indebted for the communication of many useful and practical observations taken from the opening of deceased bodies) has among his other cases sent me one that serves to confirm the present opinion. A man, aged thirty-four years, was treated by his physician for the cure of a pleurisy; and with such success, that the fever and pain of his left side were so far reduced by the second day of the malady, that the patient thought himself almost entirely cured, and neglected to observe any further care or regimen, but with an event that at last proved fatal to him: for he lived afterwards in a languishing condition, and confessed he always perceived an obtuse pain

From the remarks of M. Pinel, it appeared to me, something had been done, towards filling up the "lacune en medicine," of which he speaks, when at a late meeting of the Medical and Physical Society, I read my case of abscess in the spleen.* For I did not then know that most of the Greek writers, and all the Arabian authors, had mentioned it. Hippocrates,† Aretæus ‡ and Ætius,§ all speak of abscesses in the spleen. Hali Abbas,||

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in the part that was first affected. Within a few weeks after his first illness he had a considerable swelling in his right leg, that again disappeared of itself; and another of the like sort shewed itself after that in the right side, and of a considerable magnitude, which again spontaneously disappeared. Lastly, a like tumour appeared in the left thigh; and while it there continued, another swelling formed itself upon the inner side of the right arm, being soft, and larger than one's fist. At length succeeded a dysentery, an ascites, and anasarca, with weakness, and death.

"At the opening of the body of this man after death, were observed the following appearances: The abdomen was swelled, and every where livid, but more especially on the left side; the omentum was very short, hardly two inches long, and without fat. All the intestines were extremely turgid, and inflamed throughout their whole extent, both large and small ones; and in several places they were gangrenous; nor was there any considerable quantity of lymph within the capacity of the abdomen. The stomach also was very turgid, and for a large part gangrenous in the upper and left portion of it; the pancreas small and flaccid; the mesentery bloodless, but entire; in the mesocolon appeared a great many small friable bodies of a dark greenish colour, in bulk, figure, and appearance very much resembling the buds of capers, as they are usually served, pickled in vinegar, to the table. The liver was extremely large, and in its lower part of a darker brown colour than is natural. The spleen was in its lower part concreted to the peritonæum, full of a thick, white, and abundant matter; there was also a great quantity of like matter which floated in the water of the abdomen. The tumour of the arm being opened by a lancet, appeared full of the like matter, both as to colour and consistence, with what was observed before in the spleen. The lungs in several places covered with the pleura." (Commentaries on Boerhaave by Baron Van Swieten, Edin. 1786.)

* See p. 151 of this work.

† Hippocrates, Edit. Lugduni, 1564, lib. i. de morbis, fol. 150. Ibidem——lib de affectionibus, fol. 197. "Aliquibus autem splen suppuratur et usti sani fiunt," and many other places.

‡ Aretæus gives the symptoms of splenic suppuration very correctly. De Caus, et sig. morb. diut. lib. i. cap. 4 p. 43.

§ Ætius, Tetrabiblion, lib iii. Sermo, ii. cap. x. speaks of inflammation of the spleen terminating in suppuration, but says it is rare.

Galen continually refers to the action of the spleen, and he attributes many diseases to its being inefficiently performed, but among them I do not find abscess.

Oribasius (A. D. 360,) cap. xxvi. *de Liene*, uses almost the very words of Galen. "Lien instrumentum est quod purgat lienosos et melancholicos succos qui jecore jignuntur." And in speaking "de lienes affectionibus," he does not mention abscess. Paulus Ægineta, does not, that I can find, speak of abscess; he gives a very clear account of its functions, and he attributes the black jaundice to obstruction of the duct or passages by which the black feculence of the blood is attracted from the liver, or to diminution of the attractive power of the organ from debility, (De Re Medica. lib. iii. cap. xlix. de Splene.)

Alexander Trallianus, is exceedingly copious in the treatment of spleen disease; (see lib. viii. cap. x. xi. xii. xiii.) but he does not once mention suppuration.

|| See Hali Abbas, (lib. *Sept.* Practice. capit 40. de passionū splenis medela,) many of his prescriptions are directed to the cure of abscess. He says, the spleen is subject to the same morbid conditions as is the liver, and consequently there must be an affinity of treatment. But he adds, "the spleen being a more hardy and a less vital organ than the liver, ("fortius sit et minus epate nobile") we use for the cure of its diseases the bitter and acid medicines both internally and externally, without fear,

in his very copious digest of therapeutic agents employed in spleen disease, repeatedly refers to the treatment of abscess, as do also Avorrois and Abenmoyer and especially Avicenna.

I am indebted to my friend Dr. Sprenger, whose profound study of Arabic literature and philosophy is exercised in a manner, not less gratifying to myself, than advantageous to the profession, in the valuable acquisition he has here given us, from the noble "*arabum princeps*," Avicenna.

Avicenna (died A. D. 1037) Lib. iii. fenn. 15 tract. 1 p. 480 of the Arabic edit. Rome 1593 folio, By comparing this with the Latin translations it will be at once apparent how defective they are.

The main subject is first stated, as to the *office of the spleen* which is to "free the blood from its heaviness and combustion." This *sounds* strange, but its *sense* is precisely similar to what professor Schultz has stated* that the vesicles when burnt, or in his more modern phraseology "when no longer capable of being acted upon by oxygen," being "old, *heavy* and useless," they "sink to the bottom," in the vena portæ, and are excreted through the liver, or there reorganized. Liebig still more distinctly maintains this theory of combustion. Again Avicenna attributes the natural and accidental black humours to this combustion and heaviness. This idea is more definitely stated at p. 59 of this work. "If the old deeply coloured vesicles are not excreted from the circulation as new ones form the blood assumes a darker tint, and the portal system is congested."

Its position is then noticed in relation to the liver and gall bladder; then follows in detail ;—

1. Supposed secretion of the spleen, use assigned to it. See also

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Laxative prescriptions for proper cases, medicines for enlarged and indurated spleen, prescriptions for excessive hardness, powders to be taken *in water wherein red-hot iron has been cast*, others to be taken in whey, and fit both for *hardness and abscess*, *&c. &c.* keeping in mind however that in order to strengthen the organ and to encourage its functions aromatic and pungently sweet scented medicines are to be employed, in which also there be some tartness, so that they may purify the blood by freeing it from its melanotic humors.

In acute affections he advises general bleeding with a wise precaution regarding the time and occasion. If the disease of the spleen be attended with pain and arise from inflammation, bleeding should be practised in the splenic vein of the left hand, if there be *sufficient constitutional strength and the season of the year be favorable.* And the patient should drink decoctions of such fruits, as tamarinds, lemons (also jutibe aquisutbe) A variety of *trosches-powders*, to be taken in either whey or camel's milk, consisting chiefly of acid; and astringent vegetables are then ordered. Plasters also of Tarafe leaves, rubbed up with barley meal, and moistened with vinegar, should be applied over the spleen, when the stomach is empty, "or take libelabum, boil it in vinegar and bruise it in a mortar with barley flour, and when well-mixed apply it to the spleen," or bran boiled in vinegar can be applied as a *cataplasm;*
Powders for inflammatory pain of the spleen with fever,
Trosches for the same,
————for abscess in spleen,
————for pain and fever from inflammation,
————for immoderate heat of—for chronic pains of, &c.
Decoctions to be used as fomentations to the part, &c.

* See p. 59 of this work.

Galen,* Hali Abbas. Theophilus† held the same opinion and also Vesalius.

2. Obstruction of spleen causes, cancer (melanosis,) elephantiasis, &c., of this last Galen‡ and Vesalius§ report examples ; but in the excellent account of Dr. Kinnis‖ no spleen disease is mentioned in the dissection report.

3. Congestion of spleen, leads to abscess (*see* CASES.)

4. Bulimia caused by spleen disease. This is not unlike the "mal d' estomac," of negroes¶ : in some cases spleen disease is met with.

5. Spleen disease causes fever, M. Piorry's opinion, "according to his view of the question the primary action of marsh miasms is on this abdominal viscus, and the direct result of this action is the developement of paroxysmal fever." *Med. Chir. Review,* July 1843, p. 192."

6. Enlargement of the spleen the cause of wasting of the body, also of black vomiting. This is a fact universally received. CASES p. 193.

7. Congestion of spleen an effect of its debility, (see MORGAGNI quoted FOOT NOTES p. 170 and ORIBASIUS p. 160.) The well known leaden hue of the lienosi, *black icterus,* is probably a first stage of splenic scurvy, is solely attributed to the spleen. Lining of the intestines observed to be swollen, (tomentose) see cases p. 162, &c. Besides obstruction, abscess and swelling, solution of continuity (i. e. rupture) is enumerated as occurring in the spleen. Emaciation is observed to be inseparably connected with enlarged spleen ; diminution, and impoverishment of the blood is another result. Spleen disease precedes or follows fever, bloody urine forms on occasional crisis. Epistaxis also may do so, and bloody stools. How disease is affected by temperament is then noticed, and the distinction between acute and chronic abscesses, and the metastases of splenic suppuration are also observed.

The symptoms of abscess are admirably detailed ; there has been nothing added to this excepting perhaps the *throbbing* which is noticed by Riverius** and Lommius†† as a symptom, whose account for the rest, is much the same. It is probable as Van Swieten suggests, that distension of the stomach or colon was occasionally confounded with an *inflated* condition of spleen, especially as eructations are mentioned.

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* Foot notes p. 134, 135 of this work p. 245.

† "Roborat enim quas contingit ventriculi partes animalisque appetentiam excitat." It would seem that this (the gastric juice) was supposed to come from the spleen. THEOPHILI PROTOSPATHARII, *De Corp. Hum. Fab. p.* 80. *Greenhil. Edit. Oxonii* 1842.

‡ Galen attributes Elephantiasis to the presence of atra-bilis, as also he does varicose veins and hemorrhoids. "Quandoquidem ad cutim universam expellitur ubi gignit elephantiasin." .... He says it was very common with the Alexandrians, on account of their gross living, and the heat of the climate ; seldom met with in Germany, and never among the Scythians. Gal. de arte cur, ad Glau. lib ii. cap. x. p. 982, Epitome Edit Argent 1504.

§ Vesalius says that he also has found this coincidence of enlarged spleen with elephantiasis. "In quodam vero elephantiasi laborante, ... turgidiorum majoremque lienem reperimus." A. Vesalii Corp. Hum. Fab. lib. v. cap. ix. p. 438. Lugduni 1725.

‖ Edin. Med. Journal vol. lviii. p. 19, and p. 272.

¶ Dr. Muray (on Cachexia Africana, Edin. Med. Journ. vol. lix. p. 315,) found ulcerated communication between stomach and spleen.

** Edit. fol. lib. xii. p. 296.

†† LIENIS INFLAMMATIO.
"Jodoci Lommii Observ. Medic. lib. ii. p. 192.
Editio. Quarta. Amstælodami 1738.

The state of the skin, of teeth, gums, and the sores of *splenic-scurvy* are then noticed. The peculiar character of the evacuations when derived from the spleen, &c.

On the whole I feel perfectly convinced, that this account given by AVICENNA, of the morbid conditions of the spleen, is more full, more accurate, and true to nature, than can be found in any modern book whatever; at all events, of about one hundred books, which I have been able to consult upon this subject alone, and most of which are here cited, it is infinitely the most comprehensive and the best.

It forms therefore, even at this day an admirable summary of what is known upon the subject, and is therefore an appropriate conclusion to this DIVISION OF THE SPLEEN, whilst it demonstrates how much we may still learn from the writings of the ancients, and our obligation to study them. In the words of Van Swieten already given "Nihil autem majis incitat medicos, ut diligenter evolvant priscorum medicorum volumina, quam dum vident difficilimis casibus lucem affundi a veterum observationibus, vixque aliquid in praxi occurrere dubie, quin inveniamus apud illos."

G. L. B. Van Swieten comment in Boherhaave, Vent. Inflam. Tom III. p. 154, Lugdun, Batav. 1755.

AVICENNA

ON THE ANATOMY AND PHYSIOLOGY OF THE SPLEEN.

(Translated by Dr. Sprenger.)

"The spleen is destined to free the blood from its heaviness and combustion,* which constitute the natural and accidental black humor. The spleen has a humor (literally water) of its own and there is a peculiar function assigned to this organ. For this reason it has its position under the heart and opposite the liver and gall-bladder; with which it keeps the equiliber.

"*The various conditions of the functions of the spleen.* 1. When the spleen (is in a healthy condition and) attracts the impurities of the blood, it digests them; and as soon as they are digested, and fit to stimulate and to astringe (tan)† the os ventriculi, and when they are in a mean temperature, it sends them through a large vessel, to the os ventriculi.

"2. If the spleen be too weak to keep up with the salutary action of the liver, those diseases will infect the health of the body, which are the result of black humours, as cancer, a varicose condition of the veins, elephantiasis, impetigo, and black lichen, black lepra or melancholy, and scrophula.

"3. If the spleen be unable to remove the black humors which ought to be excreted from its substance it will become enlarged, and an abscess may form.

"4. If the spleen cannot harbour all the black humours which are generated in it, and in which the ingredients are contained which stimulate the stomach, the patient will suffer of bulimia, whenever they are abundantly poured out from the spleen.

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* ان الطحال بالجملة مفرغة ثقل الدم و حراقته

† دباغة

" 5. If the secretion of the spleen be acid, nausea and fever will be the consequence, though the secretion may not be too abundant; in this case, it even sometimes happens, that the intestines become excoriated, which renders the disease fatal.

" 6. If the spleen be enlarged, the whole body and particularly the liver will become wasted, for the spleen and liver are opposed to each other ; sometimes the black humors are rendered moderately acid in the liver (according to the Latin copy in the spleen ;) and then it may happen that a great quantity is poured into the stomach, in this case a black vomiting will take place which is sometimes periodical; and there may take place what is called a turn of the stomach.

" 7. If black humors are abundantly secreted (by the spleen) without fever, it is to be attributed to the debilitated condition of the retentive power of the organ ; if on the contrary there is a retention of the black humors,[*] it is to be attributed to the contrary circumstance.

" *On black icterus*—This entirely depends on the spleen, for a liver disease always causes the yellow icterus. Jaundice is never depending on the spleen. There are instances of black icterus which are depending upon the liver, but the black colour is more intense if depending on the spleen. This is accompanied by other symptoms, as the hardness of the spleen which is enlarged and the pains of the left side ; urine and stools are black, sometimes black stuff is passed per anum, along with the stools, which is a sign of great intensity of the disease.—Sometimes however the appearance of the urine is healthy, this is particularly the case if the liver does not suffer ; a healthy urine, is therefore, under the above circumstances, a sure sign that the spleen is affected. In this icterus the lining of the intestines is swollen, and there is a sense of weight and pain. In most instances the bowels are locked up, if not, the digestion is bad and there is much hiccup. This is accompanied by lowness of spirits and nightmare, sometimes a black sweat[†] breaks out, which may be owing to various causes. If owing to the obstruction of the passages, it is accompanied by weight and hardness, which is particularly felt during sleep, in the left side. If it be owing to a warm and hard swelling, it will be characterized by the symptoms of an enlarged spleen. If owing to weakness there will be no weight. If there be debility of the liver, it will be accompanied by the symptoms which characterize that condition.

" *Treatment.*—See whether there is congestion of blood in the spleen ; if so you bleed the left basilic vein, then the salvatella. After that, you occupy yourself with the spleen, in removing its obstruction, enlargement and debility ; and if there be a superabundant quantity of black humor in it, which has been prepared from the food and from the system, it must be removed, which can best be done, by the decoction of scolopendria and hellebore mentioned in our formulary, which is to be frequently repeated, or the decoction of epithemum.

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[*] القوة الماسكة

[†] Bloody sweat it has already been observed is noticed by Tulpius in spleen disease (see p. 248 note ;) also in dissolution of the blood from yellow fever by Hillary, p. 151, and it is noticed in the Spanish treatise on this disease by Ardevol, as having often occurred in the Antilles, but rarely in Spain itself ; he says " Porque en las Antillas vemos la transudacion de la sangre á trave's del derme, y acá en las costas de Espana rarisimamente alguna vez." p. 155. *La cardite intertropical,* llamada vulgaramente. Febre amarilla y vomito negro, &c. par D. Jamie Ardevol—1833 published at Paris. But one of the best authenticated cases is that of the young clergyman by Huxam in his letter to Lind, who gives the case at p. 133 of his celebrated treatise on the scurvy.

GENERAL NOTICES ON THE DISEASES OF THE SPLEEN.

"The spleen is liable to be attacked by any of the diseases mentioned, which arise from the corruption of the humors, and constitution, as obstruction, solution of continuity[*] and the like, and various swellings. Know! whenever the spleen is enlarging the body wastes away. First of all the liver wastes away, being (physiologically) opposed, to the spleen and in consequence of this, less blood is made, and even of this diminished quantity of blood the spleen will consume a great portion, to increase upon it. It is a general rule—the wasting of the spleen shows that the humors are good, and the enlargement of this organ shows that they are bad. Spleen diseases frequently precede or follow mixed fevers, and most spleen diseases happen in autumn as well as icterus, both the yellow and black. They have always a bad influence on digestion; sometimes they increase the appetite, at other times they diminish it. Sometimes they cause acidity, and vomiting of a spumous appearance (literally, from which the earth boils).[†] They are preceded by sickness and pain. Bloody urine is a favourable symptom towards the end of the disease; a dense sediment, is equally a good symptom; as well as a deposit in the urine which resembles coagulated blood. Sometimes the fever which accompanies spleen diseases, has in this way its crisis; and the spleen becomes relieved.

ON THE SYMPTOMS OF THE CRASES (TEMPERAMENTS)[‡] OF THE SPLEEN.

"The warm crasis is indicated by thirst, and a feeling of burning in the left side, and a morbid alteration in the power of attracting the black humors. The cold crasis is characterised by the weakness of attraction, want of appetite, turbidity of the conjunctiva, and frequent eructations, and hiccup. The dry temperament is accompanied by hardness of the spleen, emaciation of the body, thickness of the blood, and darkness of complexion. The humid crasis is indicated by a great softness, and tenderness of the left hypochondrium, weight of the body, dark color, with a bluish white or lead colour, or a dirty colour.—The diseases of the spleen are to be treated in the same way as liver diseases, but more energetically.......There are however some medicines which are particularly useful in spleen diseases, as scolopendra (i. e. aphrodite aculeata), gummi ammoniacum, and teucrium scordium. Sometimes it is necessary to bleed the basylica or saphena, or even the jugular vein.

ON WARM AND COLD (ACUTE AND CHRONIC) ABSCESSES OF THE SPLEEN.

"It seldom happens that there is a warm (acute) abscess in the spleen, and that you are at once able to ascertain it; but in most cases, if a warm abscess take place in the spleen, it hastens to induration, for the blood, which comes to the spleen to nourish it, is thick, and it becomes hard in the abscess; hence most abscesses of the spleen are indurated. Sometimes however they are soft. Most spleen abscesses are of a sanguine nature, exceptionally however they may be bilious, for the most frequent cold affection of the spleen is not an abscess, but induration. Bilious abscesses are in the lower part of the spleen, and they may have one of the four shapes,—round, wide, long and wide, or long and narrow. Phlegmatic abscesses are very rare.

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[*] تفرق الاتصال

[†] قذف بشي حامض تغلي منه الارض

[‡] Temperature of the blood not only applies to the degree of its warmth but also to the greater or lesser degree of its plasticity or inflammatory nature.

"A splenic person is a man who suffers of hardness of the spleen either on account of the thickness of its parynchema (in this case the hardness has not been developed to an abscess,) or on account of a hard abscess in the spleen. The former is less serious. Hippocrates says, (If a splenic person have a deep-seated pain there is little danger.) The reason of this is, that there is still sensation. He further says (If he pass blood in his stools, it is a good sign, for it is to be expected that a revolution will take place: but if the patient should pass blood for a long time, he suffers of lubricity of the intestine and he becomes dropsical; and this leads to a fatal termination, owing to the exhaustion which will supervene.) Hippocrates also says, (if a man have pain and swelling in his spleen, and if there flow red blood from it, and if white sores rise on his hands,* which are not painful he will die on the second day.) Sometimes enlarged spleens terminate with epistaxis, particularly from the left nostril or with abscesses about the ear, which suppurate with difficulty; and have no tendency to point, on account of the thickness of the matter contained in them. The most favourable urines in this disease are the thick and bloody urines. Urine with a thick sediment is a sign that the spleen is cured. Some medical men are of opinion that if a fever patient have an (enlarged) spleen, and there be coagulated blood in his urine, he will lose (the enlargement of) his spleen. Some people suffer a long while of enlargement of the spleen, without any apparent injury to their health; others on the contrary suffer very much on account of the matter which is collected in the spleen, and on account of the increased activity of the spleen. Sometimes an abscess of the spleen happens after an abscess of the liver, by the way of metastasis; this however is less unfavourable than the metastasis of an abscess from the liver to the spleen.

"*Symptoms.*—In all abscesses of the spleen there is a feeling of weight; there is considerable pain also, which extends to the left side of the diaphragm; sometimes it extends up to the collar-bone, and there is a pain in the left scapula and collar-bone. Inspiration is sometimes painful and doubled, and its sound like the sobbing of children; for the motion of the diaphragm is rendered painful by the resistance of the spleen. If the abscess be not very large, there is no pain in the diaphragm, for the sympathy between spleen and diaphragm is not so great as between liver and diaphragm. In the same way there is less sympathy with the stomach. The swelling of the spleen can be ascertained by the touch, for the body is emaciated, particularly if the abscess be in the lower part of the spleen. The blood becomes impoverished, for the spleen attracts it and clears it, from its gross particles. Sometimes it happens that the feet and knees are warm, whereas ears and nose are cold. The diagnostic symptoms, between an inflated condition of the spleen, and abscess of the spleen, are the absence of weight and of pain on pressure, which is very great in cases of a splenic abscess; whereas it frequently affords relief if the spleen be inflated; further, there is wind passed by eructations.

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* Is this the blister or *bulla?* as in case p. 182. The Arabic is قروح بيض

"All hot (acute) abscesses of the spleen are characterized by inflammation, fever and thirst. If they have a bilious character the thirst and inflammation are greatest, but there is less weight than in the other varieties ; further the heat (afflux of blood) is more likely to produce inflammation than enlargement of the spleen. The complexion is sallow. In cases of hard swelling of the spleen, the breath is bad and the mind suffers much under depression of spirits.

"In indurations of the spleen the tongue and complexion becomes black..... It is not necessary that splenic indurations be accompanied by fever ; sometimes however the fever is very intense. Sometimes the disease of the spleen is accompanied by sores in the legs, erosions of teeth and soreness of the gums, owing to the thickness of the blood which descends into the legs, and to the vitiated condition of the vapours which ascend to the gums, and corrode them and the teeth. On this account the sores on the legs are sometimes the crisis of the disease. Violent exercise has with some splenic patients the effect of producing pustules in the legs which are called *Batam*, and the matter goes from the spleen to these pustules. The urine of spleen-patients has sometimes the appearance of sound urine, but it becomes black if the patient take horse exercise. If this were owing to a constitutional cause, the urine should be black in the time of rest as well as after exercise.

"Too much bleeding may be the cause of an enlargement of the spleen. Autumn is a great enemy of the spleen. If hardness of the spleen follow, after a warm swelling, you will first find inflammatory symptoms which gradually give way to the symptoms of hardness. Sometimes the spleen is strong enough by its natural efforts, or through the assistance of medicine to get rid of all the morbid matter that is in it ; it is emptied by stools and looks like the remains of turbid oil. That this stuff comes from the spleen and not from the liver is evident, for the liver is perfectly sound ; whereas the spleen which has been diseased is relieved by these stools.

"In cold (chronic) and phlegmatic abscesses of the spleen, you will find the common symptoms of those abscesses. It is soft to the touch and the complexion is white and very little black. Spleen patients have a good appetite ; but they have great difficulty in vomiting. They are mostly very costive and require strong medicines to move their bowels or to make them vomit.

In the beginning of this article, I have alluded to a probability that in medicine both the Greeks and Arabs had borrowed from the Hindoos. Royle it appears had already made this discovery respecting the *Arabs.**

"Dietz proves that the late Greek physicians were acquainted with the medical works of the Hindus, and availed themselves of their medicaments ; but he more particularly shews, that the Arabians were familiar with them, and extolled the healing art, as practised by the Indians, quite as much as that in use among the Greeks. It appears from Ibn Osaibe's testimony (from whose biographical work Dietz has given a long abstract on the Lives of Indian Physicians,) that a variety of treatises on Medical Science were translated from the Sanskrit into Persian and Arabic, particularly the more important compilations of Charaka and Susruta.*

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* (Antiquity of Hindoo Medicine J. F. Royle, M. D. London, 1837. Note pp. 45, 46, 64, 177, 183, 187.) Royle 56.

The following translation, from this Sanscrit work "SUSHRUTA," has been most obligingly forwarded to me by *Baboo* Moodusoodun Gupta, native Demonstrator of Anatomy in the Medical College, to whose high caste, urbanity, learning and unremitting attention, the College owes so much of its success. I make no apology for introducing it. And most gladly acknowledge my obligation to the Baboo, for his ready acquiescence in my wish to obtain a precise knowledge of the opinions of these ancient Hindoo Doctors upon this subject.

I had mentioned to him my views of the use of spleen, and he recognized at once, the very doctrine which the Hindoo Vedas set forth; and promised me this extract which he has now so kindly given. Not only is it valuable, because it proves that the Hindoos held this opinion, of chyle receiving its red colour in the spleen, and *there* becoming blood; the precise fact which I have all along been labouring to prove, but it is curious also as containing, perhaps the first distinct account in any language, of the existence of chyle, and both in this respect and in making the arteries the channels of its circulation, when perfected as blood, it is greatly in advance of the Physiology of the Greeks, who, with the exception of Galen, looked upon the arteries as air vessels only.

Indeed the followers of Galen in modern Europe, who blindly submitted to him in all other things, with most unaccountable perverseness, did not follow him, in looking upon the arteries as blood vessels. This great truth alike consistent with experience, and with common sense, and abundantly proved by their great master, required even in the 17th century, all the logic, all the learning, all the irresistible demonstration of our own immortal HARVEY to establish it, and to refute a doctrine which we can now only wonder at, for its absurdity.†

It is curious too, that on the first discovery of the lacteals, which occurred about the same time with that of the circulation, (1615) they were thought by Gaspar Asellius to go to the liver,‡ which is the view entertained by Susruta.

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* Of this work Professor Wilson says—"The *Ayur Veda*, as the medical writings of the highest antiquity and authority are collectively called, is considered to be a portion of the fourth or Atharva Veda, and is consequently the work of BRAMA—by him it was communicated to DACKSHA, the *Prajapati* and by him to the two Aswins .... "They instructed INDRA, and INDRA was the preceptor of DHANWANTARI....also styled *Kasi-rajah*, prince of Kasi or Benares. His disciple was SUSRUTA, the son of VISWAMITRA, and consequently a contemporary of RAMA: his work also exists, and is our chief guide at present. It is unquestionably of some antiquity, but it is not easy to form any conjecture of its real date, except that it cannot have the prodigious age, which Hindu fable assigns it—it is sufficient to know, that it is perhaps the oldest work on the subject, excepting that of CHARAKA, which the Hindus possess. One commentary on the text, made by UBHATTA, a Cashmerian, is probably as old as the twelfth or thirteenth century, and his comment, it is believed, was preceded by others. The work is divided into six portions—the *Sutra St'hana*, or Chirurgical Definitions; the *Nidana St'hana*, or section on Symptoms, or Diagnosis; *Sarira St'hana* anatomy; *Chikitsa S'thana*, the internal application of Medicines; *Kalpa-St'hana* Antidotes; *Uttara St'hana* a supplementary section on various local diseases, or affections of the eye, ear, &c.—In all these divisions, however, surgery, and not general medicine, is the object of the *Susruta*."

† *See G. Harvei opera omnia* (1766) *see Prooemium, Exerciti. Anatom. de Motu cordis, et song*, for the opinions of HARVEY's contemporaries.

‡ Harveii Vita, p. xxx. op. cit.

सुश्रुतः।

तत्र पञ्चभौतिकस्य चतुर्विधस्य षड्रसस्य द्विविधवीर्य्यस्याष्टविधवीर्य्यस्य वानेकगुणस्योपयुक्तस्याहारस्य सम्यक् परिणतस्य यस्तेजोभूतः सारः परमसूक्ष्मः स रस इत्युच्यते। तस्य च हृदयं स्थानं स हृदयाच्चतुर्विंशतिं धमनीरनुप्रविश्योर्द्धगा दश दश चाधोगामिन्यश्चतस्रश्च तिर्य्यग्गाः कृत्स्नं शरीरमहरहस्तर्पयति वर्द्धयति धारयति यापयति जीवयति च। स खल्वाप्यो रसो यकृत्प्लीहानौ प्राप्य रागमुपैति॥

भावप्रकाशः।

यकृत्प्लीहा च रक्तस्य मुख्यं स्थानं तयोः स्थितं। अन्यत्रापि स्थितवतां रक्तानां पोषकं भवेत्॥

प्लीहरोगसम्प्राप्तिर्लक्षणञ्च।

विदाह्यभिष्यन्दिरतस्य जन्तोः प्रदुष्टमत्यर्थमसृक् कफश्च प्लीहाभिवृद्धिं सततं करोति प्लीहोदरं तत्प्रवदन्ति तज्ज्ञाः॥ वामे च पार्श्वे परिवृद्धिमेति विशेषतः सीदति चातुरोऽत्र। मन्दज्वराग्निः कफपित्तलिङ्गैरुपद्रुतः क्षीणबलोऽतिपाण्डुः॥

चिकित्सा।

प्लीहोदरिणः स्निग्धस्विन्नस्य दध्ना भुक्तवतो वामबाहौ कूर्पराभ्यन्तरतः सिरां विध्येद्विमर्दयेत्पाणिना प्लीहानं रुधिरस्यन्दनार्थं ततः संशुद्धदेहं समुद्रशुक्तिकाक्षारं पयसा पाययेतेत्यादिः॥

PHYSIOLOGY OF THE SPLEEN.

The four kinds of food,* which have different qualities, and are composed of five elements,† when taken in proper quantities become digested.

After digestion their essential part, which is thin and pure (and white), is called (Rasa)‡ chyle; the great reservoir of the chyle is the heart, from which it is carried throughout the whole system by means of (dhamanis) arteries. The chyle thus circulating throughout the system nourishes and supports the body and gives vitality to its members. *But the Chyle receives its redness when it reaches, the liver and spleen.* The liver and spleen are the principal reservoirs of the blood, and the blood contained‡ in them, supplies other parts when necessary."

PATHOLOGY OF THE SPLEEN.

The enlargement of the spleen.

By taking indigestible and gross food, the blood and phlegm become extremely deranged,§ which causes the enlargement of the spleen in the left side. The patient then labours under a low fever, with prostration of strength, he loses his appetite, his colour changes into white, and he is afflicted with the other symptoms of the deranged bile and phlegm.

TREATMENT.

To cure the spleen one of the veins in the elbow of the left hand is to be opened, at the same time the spleen should be squeezed with the hand in order to evacuate the blood from it, after which purgatives are to be given, then the tonics, and alkalines are to be administered. (Modern native physicians apply actual cautery over the spleen, they make use of moxa also, and administer internally tonics and acids.)

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* 1, चर्व्यं, that which is to be chewed; 2, चूष्य, to be sucked; 3, लेह्य, to be licked; 4, पेय, to be drank.

† 1, Earth; 2, water; 3, fire; 4, air; 5, ether.

‡ The Hindoos knew that the heart circulated the vitalizing blood—रस (rasa) whilst the other kind of blood रक्त (rakta) is assigned to the liver.

§ The same remark is found in Galen.

PRELIMINARY OBSERVATIONS

ON THE KIDNEY AND URINARY ORGANS.

Of the use or function or physiology of the Kidney we understand as much, and but little more, than was known two thousand years ago. We know that at some point of its structure, the secreting vessels which ramify through its interior, and upon which is distributed arterial blood, have the peculiar and distinct office impressed upon them of secreting, not saliva, nor milk, nor bile, but urine ; but the why and wherefore is entirely beyond our reach. We need not hesitate to admit this. We do not know why, three nerves, each of which, reduced to its anatomical element, offers nothing whatever of distinct adaptation, nothing either mathematically or mechanically fitting it for its office, should yet be impressed with distinct functions, which are never by any chance interchanged. The optic nerve when squeezed, wounded, inflamed, atrophied, undergoes no other *sensations* than such as have reference to light and color ; and we never hear a patient speak of sledge hammers beating all night in his eye, nor of surging waters, nor of gushing rills, booming or tinkling in the orbit. Neither do we hear of flashing lights, floating spots, prismatic colors, and so on, referred to the ear. Neither when the gustatory nerve is affected, do we ever find it suffer from any other sensation than what has reference to taste, sour or bitter or metallic, or sweet, or utter annihilation. If then there be this distinct bound and limit to physiological investigation in this one case of the nerves, we may rest content that there should be such in the organs of secretion, and submit to consider ourselves as no wiser than that fine old philosopher Aristotle, observing with him, that vessels designed for secretion are bound up and gathered into bundles, and covered with appropriate vestments ;* the form of those bundles differing in different kinds of animals, and the function, in amount or quantity of its product proportioned to the habits of each animal, that is in relation to the other organs which determine those habits, whether in birds, reptilia or quadrupeds. There is, I think, a wise simplicity in this declaration of the liver and spleen and the kidneys being bundles of vessels, each endowed with special offices, for it is perfectly consistent with all the more minute observations of our day, † and valuable be-

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* Operum Aristotelis. De part. Animal, Lib. iii. p. 769-770, Edit. Geneva 1605.

The discoveries of Bowman prove this singular fact of a *loose pendent* convolution of *bare capillary vessels* (Malpighian bodies) hanging within the dilated extremities of the uriniferous tubes and furnishing the greater part of the urinary secretion—the aqueous part.

† Muller in the work already quoted says at p. 502—

"However different the secretions of the glands may be, the substance of their elementary parts is in all instances white, or of a greyish or yellowish white colour. There is no essential correspondence between the substance of the gland and the matter which it secretes.

"The mode in which the extent of internal secreting surface of a gland is realised is very various ; and no one kind of conformation is peculiar to any one gland. Perfectly different glands may have a similar elementary structure, as is the case, for instance, with the tetis and the cortical structure of the kidneys. And similar glands have often a perfectly different structure in different animals ; of which the lachrymal glands, examined in the chelonian reptiles, birds, and mammalia, afford an example. How various, too, is the elementary structure of the liver in the animal series ; in one case cause it keeps up an idea of *unity* of action and of suffering, which is very important to the practice of medicine.

Having premised thus much, it does not appear to be of any very great necessity to demonstrate in what precise portion of the organ this secretion of urine takes place ;* we see however that when all the arterial vessels are left, on the one hand,† and all the venous tubes on the other,‡ that there is yet wanting, the communication and intervening tubes (the capillaries and secreting vessels,) and in those very vessels which are *not* shewn in any of the preparations we possess, we must look for that which is the essential urinary organization, or kidney. That the various tubes should be collected in the mamillary processes, that funnels should be applied to them and their contents collected into a larger reservoir, the pelvis, and again conducted, in animals where the urinary secretion is very abundant, to a still greater and more commodious estuary, the bladder, by distinct canals (ureters) is in every way a fair and profitable subject of anatomical investigation and demonstration, from its vast importance in disease. But whether one kidney secretes at one time, and then the other ; whether one more than the other, is not of much consequence.§ And even if the bladder should receive the urinary secretion when the ureters are tied,‖ it is only an expansion of the great broad physiological truth, that the vessels which there render themselves, are in fact essential to urinary secretion.

The grand primary view entertained by the ancients of the vast importance of this viscus as an organ of elimination, is that which pathology still impresses most strongly upon the physiologist. But happily, this climate throws so much upon the skin and mucous membranes, that it relieves us in a great measure, of what proved to nearly all our European brethren, insurmountable difficulties of diagnosis, until Rayer by his patient

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being represented by simple cæca ; in another, by tufts of cæca ; in others again, by bunches of cells, or by a spongy mass ; or, lastly, by branched ducts ending in feather-like terminal twigs ! How infinitely various is the conformation of the secreting tubes of the testes ! The kidneys alone maintain one constant character in all classes of animals ; namely, that of consisting of long tubes which do not ramify, but run either parallel with each other or interwoven, although the arrangement of these tubes is subject to the greatest variation.

" We do not observe an absolutely progressive developement of the glands from the lowest to the most perfect animals ; on the contrary, we meet in every class with rudimentary glands of extremely simple structure, constituting their first form in the class : thus, the salivary glands have this simple structure in birds and serpents ; and the mammary gland of the ornithorhynchus, the prostate gland of rodentia, the pancreas of fishes, and the liver of the lower animals, consist merely of cæca."

* Bowman says, the watery part is supplied by the Malpighian bodiesm the essential part by the cilia which are projected into the uniferous tubes. In frogs, he has seen them directing a stream into the tubes even after death.

† See No. 167.

‡ See No. 168.

§ " Trahunt itaque renes unus post alterum ; quoniam si eodem simul tempore aeque valenter traherent, alter alterius functionem retrahens impediret : id boni Dei providentia praesentiens, dextrum renem superiorem et venae cavae proximum collocavit, ut vicinitate citra revulsionem attraheret."—Theophili de Corp. Hum. Fabr. ii. 14, p. 84.

‖ Mais toute l'urine n'est point obligée de passer par les reins ; la vessie en reçoit directement une portion ; l'expérience le démontre. Après avoir vidé le vessie et intercepté sa communication avec les reins par la ligature des uretères, on a vu que l'urine au bout d'un certain temps sortait par les voies ordinaires."

Principes de Physiologie par Charles Louis Dumas, Paris, 1800, Tom. iii. p. 593.

and precise induction achieved, for urinary diseases, what Lenennec did for those of respiration. Happily then for us, disease of the kidney is not common in India, and our illustrations of it are therefore very few, and will claim in consequence a less share of our attention. One cannot help remarking however that the importance of the secretion of this organ as diagnostic of disease, has been very greatly neglected. Of hundreds of cases, both printed and manuscript, which I have examined, whilst the alvine secretions are marked with most praiseworthy accuracy of observation, or even disagreeable iteration, the urine which in fevers is undoubtedly of equal importance, and furnished the old masters with their most valued indications, is with us entirely neglected. I fear that here again the humeral pathology has been superceded, in a manner as little creditable to good sense as to good taste in the method of investigation.*

The mechanism of the urethra will be considered hereafter.

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* There is, it appears, a modern instance of great talents and well directed labour in the work of M. Becquerel on "the Semeiology of the urine," "the best existing guide to the pathologist, upon this subject," see Brit. For. Med. Rev. vol. xvi. p. 338.

An admirable digest of the writings of the ancients upon this head is given by Prosper Alpinus in his work De Praesagienda Vita, &c. Venetus 1601. cap. xiii. De variarum urinarum causis, cap. xiv. De bonis urinis, &c. cap. xv. De malis urinis mortem prænunciantibus. He begins his subject cap. xii. p. 146 as follows:

De prædictione ab urinis, quid sit urina, quomodo fiat, atque quantum faciat ad prædicendi methodum.

"Cum ex alui dejectionibus demonstratum sit, quomodo ægrotantium salus et mors prænoscatur, reliquum est, ut ad predictionem ex urinis veniamus. Et enim ipsarum non minus quam ceterorum excrementorum, observatio ad vitam et mortem egrotantiū præsagiendam facit. Gal. in lib 6. Cap. 4, de loc. affect. scribit, per urinam expurgari gibbas hepatis partes atque omnes quotquot sunt his superiores, et in libro 2. Prognost. indicia esse illarum affectionum, quæ in jecore et in venis fiunt. Addidit in lib. 2. Com. 2 Prorrhet. renum vesicæque affectionem indicare, vasorumque sanguinem continentium, et virtutis succos generantis tum robur tum imbecillitatem. Quo plures complurium corporis partium morbi urinis judicentur. Non tamen omnes, ut vulgo persuasum est, sed febres omnes hecticis exceptis, inflammationesque et si, quæ Thoracis partes occupant primo sputis, et que ventris dejectionibus significentur. Verum in his urinarum etiam, judicium non est spernendum."

It is evident from this passage that the vulgar opinion in the 16th century, was that *all* diseases (" omnes ut vulgo persuasum est") could thus be detected. Such extravagance fairly exposed the method to ridicule and satire. It has not escaped Burns who makes Dr. Hornbook at once "*au fait*" by the smell only of his patient's urine.

" As soon he smells 't
" Baith their disease, and what will mend it
" At once he tells 't."

Whilst even a still greater extravagance attributing to it sympathetic relations, very convenient for retributive justice, (and its *modus operandi,*) as

" The learned write a red-hot spit
" Being prudently applied to it"

did not escape the sarcastic humour of the erudite author of Hudibras. Who alludes also to its *divining* power by

" Your modern Indian Magician
" Who straight resolves all questions by' t,
" And seldom fails to be in the right."

PREPARATIONS.

Division,—Kidney and Bladder.

No. *Relation of Pelvic Organs.*

166. *Section of male pelvic organs (model in wax.)*

203. *Female organs, of the pelvis in situ.*

Structural Anatomy of the Kidney.

12. *Kidney (as a gland.)*

229. *Kidney having four renal arteries.*

676. *Two kidneys joined into one like a horse-shoe, supplied by one common trunk to the arch.*[*]

Illustrations from Comparative Anatomy.

202.* *Human kidney injected* with size and vermilion from the renal artery beautifully demonstrating its intimate structure, and the high vascularity of its substance. The tunica propria has been removed. The section shows the greater state of vascularity of the cortical, or secerning substance, in which the branches of the renal artery, (double in this instance) traverse and most minutely ramify, one set terminating in the extremity of the veins, the other in the corpusculi, from the extreme points of which, the urine is eliminated. The medullary portion is less highly injected, its texture being closer and denser than the cortical. [†]

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[*] An excellent plate of a similar union of the kidney was given by Bartholinus in 1650, *see* Cent. II. Hist. lxxvii.

[†] The preparations marked with asterisks are thus described in the old catalogue. This one No. 202, as well as Nos. 167, 168, were presented by Mr. Evans, who probably wrote also the descriptions. Like all other illustrations of structure which he has left us, they are marked by great elegance and skill in their execution. He appears to have entertained the opinion long prevalent, that there was a continuous channel from the arteries to the urinary ducts; the discovery of which was contested by Ruysh and Vieussens. Modern observations by more powerful instruments confirm rather, the simple generalizations of Malpighi. Muller who has so successfully investigated the ultimate structure of glands, says that injection only fills the tubes by extravasation, and denies anything like continuity between the arteries and secreting tubes. *See Elements of Physiology*, translated by Dr. Baly, 2d Edit. p. 501.

"*It has been demonstrated in the case of all glands that the blood-vessels are not continuous with the secreting tubes*—that the minute vessels bear the same relation to the coats of the hollow secreting canals and their closed extremities, as to any other delicate secreting membrane, such as, for example, the mucous membrane of the pulmonary air cells. The arteries do not open by free mouths into the radicle extremities of the secreting canals and cavities of the glands; but terminate by numerous anastomoses with the veins, forming a network which is distributed over the surface of the elementary parts of the gland.

"Malpighi's theory of the structure of glands is therefore certainly correct, its truth has been placed beyond doubt by recent researches: but Malpighi was not acquainted with the true glandular elements; the parts in the compound glands which he called follicles, are not really the elementary parts, but are themselves formed of much more minute elements agglomerated together around the branches of the efferent ducts. Moreover, the blind extremities of the secreting tubes are not always follicles; they may be long cæca, or ramifying cæcal canals united in a pinnate form; sometimes they are bunches of cells, in other instances large convoluted tubes which preserve their

No.

167. *Corroded preparation to shew the arteries.*

168. *To shew the veins also.*

228.* *Kidneys of a Male Python (Python Tigris.)* The reptile from which these organs were taken, was sent to the college for ana-tomical examination, and measured about seven feet in length. The principal object of this preparation, is to shew that these excretory glands are long, flat and singularly convoluted. The sections of which it is composed are applied to each other in a sort of chain-like form, differing altogether in their structure from the mammalia in wanting the medullary substance, as well as the infundibula and pelves, resembling more the kidneys of birds. The ureters take a medial course, and after leaving the kidneys, proceed directly down to terminate in the cloaca, there being no urinary bladder. This form and structure is peculiar to most of the reptilia.

564. *Kidney of the sloth (Stenox Tardigradus.)*

580. *Urinary organs of a Cetacea.*

426.

188. *Strumous abscess in kidney of a Rat.*

Morbid Anatomy of Kidney and Bladder.

269. *Sacculated kidney shewing an infinity of different sized cysts,* containing a serous fluid pervading its whole structure. There are also a few granular calculi lodged in the infundibula.

270. *The opposite or corresponding kidney to show the same kind of cysts* in its exterior surface. These were both removed from an old dropsical woman, who died in the Police Hospital.

524. *Ulceration of urethra, from a calculus, mortification from infiltration of urine causing death.* The man was brought to the College Hospital, with retention of urine of many days' duration, bladder enormously distended, scrotum mortified. Bladder was punctured above the pubis by Assistant Surgeon A. Webb, but too late to save the patient. A bougie is passed through the place of puncture and comes out through the lacerated urethra, where it meets another which was passed by the natural passage. The stone is seen lodged below in the sloughy membrane. The mortified external parts are attached. *See case* 524.

221.* *Two kidneys* from the same body shewing their disproportionate size. One is sacculated, and contained a quantity of white curdy caseous matter, such as is found in scrofulous abscesses. The tunica propria is a good deal condensed at its upper part, the large kidney, though not actually diseased, is far from being in what may be considered a healthy condition.

222.* *Diseased bladder* taken from the same subject. The interior of the viscus shows a number of sacculi pointed out by the several

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diameter throughout, and anastomose frequently with each other. The main point in Malpighi's doctrine, however, is correct; namely, that all the terminal branches of the ducts are closed cavities. The lungs may serve as the type of an entire series of glandular organs."

pieces of colored glass. These cavities may be considered as hernial protrusions of the mucus through the interstices of the muscular tunic, occasioned by the irritation of a number of small (renal?) calculi, which from having been allowed to remain at the posterior part of the bladder, (probably in consequence of the bedridden state of the patient,) have insinuated themselves into a kind of bed, and there formed a lodgement. One of these calculi may be seen occupying its special sac, the rest having most probably passed off with the urine, during the lifetime of the patient. The prostate gland is in a highly diseased state, and shows the cyst of a large abscess in its immediate substance. The canal of the urethra is here obstructed by a small fleshy carbuncle acting as a kind of valve which would very much retard the entrance of a bougie, or any other instrument into the cavity of the bladder. *See case* 222.

No.

791. *Kidneys and bladder all affected with stone from one subject.* One kidney shews a large irregular calculus, broken into three pieces, occupying a considerable portion of the organ. The other kidney has a large irregular cavity, lined in some places with layers of lymph, and in others by a distinct membrane, by which the organ is reduced to little else than a mere cyst, all its glandular structure having been destroyed. The ureter thickened, to the size of a thumb, and wrinkled and corrugated has evidently given passage to the large irregular calculus found in the bladder; and which is secured in its position by a horse hair; the bladder itself is not larger than a kidney. Its coats as thick as the finger, from the irritation of the calculus.

From an European sailor who died of dysentery. Having done duty as a seaman on his passage out. How wonderful, with such a small portion of the gland left, that secretion should go on at all!

Diseases of Bladder.

525. *Recent inflammation of bladder and urethra, taken from an artilleryman, killed by jumping out of a verandah at the General Hospital.*

595. *Female bladder* (*inflamed*) covered on its mucous surface with an inflammatory deposit of lymph, ulcerated in some places, greatly enlarged and thickened, (from a native woman.)

219.* *Diseased Bladder of a Kid.* The animal died from the effect of castration; general extravasation of urine, and the formation of abscesses of various sizes in and about the perineum and groins. Inflammation, having supervened upon the operation, extended to the bladder and neighbouring parts, from the ends of the divided cords. The two small bristles point out the entrance of the ureters and the larger those of the vasa defferentia, which are closed at the parts where the incisions were made in removing the testicles. There is an abundant efflorescence of lymph throughout the whole interior of the viscus, especially copious at the points where the ureters enter.

183. *Diseased and thickened bladder* ulcerated on its anterior aspect, probably from a stone having lodged there. There is purulent and flaky matter around the ulcer.

828. *Bladder thickened and ulcerated from chronic disease.* Its mucous coat looks like leather.

268. *Human bladder containing a large calculus broken into fragments by the calculo—fructor.*

The prostate gland is much enlarged, and the bladder, as might naturally be expected, is greatly thickened and contracted upon its contents from excess of irritation. The patient, an old man, on whom the experiment was made, died a few days after the operation of general peritonitis.

218. *Human Bladder*, exhibiting a thickening of its mucous and muscular tissues, by which•its natural capacity has been very considerably diminished. The prostate gland has been completely disorganized by an extensive abscess, the cyst of which projects greatly to the right side (looking like a second bladder, which it equals in size.) The left ureter is extensively dilated throughout its whole extent, owing to an imperfect state of the tube at its termination in the bladder, where a fungous growth may be seen projecting into its cavity. The opposite one though slightly enlarged is quite pervious,—no history of the case. There seems to be an ulcerated opening into the right vesicula-seminalis and serous deposition in the prostate.

220. *Diseased Human Bladder.* The capacity of the organ is greatly diminished, its coats much thickened and the internal surface of a very unhealthy appearance ; the section of the prostate shews scirrous bands. The colored glass rod points out the tragit of a fistulous canal which most probably opened externally in the perineum. There is a small calculus imbedded in the substance of the prostate gland. The parts having been badly removed and dissected give but an indifferent view of the nature and extent of the disease. There is no history of the case.

CASES.

CASE 222, TUBERCULAR DISEASE OF KIDNEYS AND BLADDER.

(*By Dr. Green of Midnapore.*)

The patient was an European, died in the Howrah Hospital, under the medical charge of Mr. Assistant Surgeon Green, who presented the morbid parts, and furnished the following notes of the case :

"J. Young, age from 35 to 40, a hard drinker, came into Hospital May 16th, 1837 ; he is said to have been unfit for duty on board ship during the last six months, having been constantly ailing for that period. He could make water only after great straining up to the day of his death. The symptoms of his complaint, of which he died after being in Hospital four days, were the passage of dark colored watery stools, without griping or straining ; belly soft and free from pain. On admission, a wet clammy skin, foul tongue, excessive thirst, constant sickness, great restlessness and prostration of strength; absence of sleep for many days, pulse rapid and easily destroyed; hiccup on the day after his admission, which became constant; latterly his abdomen became tumid; he shrunk from pressure, and died. Besides the morbid parts (viz. both kidneys and bladder,) the intestines and stomach exhibited extensive redness.

INFLAMMATION OF BLADDER, KIDNEYS AND URETERS—FORMATION OF CYSTS IN KIDNEY, AND OF PUS BETWEEN COATS OF THE BLADDER.

(*By Dr. Green of Midnapore.*)

1836.
Septr. 11th.

Ghazeepore, Sergeant Dutton has been thirty years in India, is a healthy stout man, has Hydrocele of both testicles. Minute detail of symptoms begin, September 11th 1836; previously to that date, during three years, he has had symptoms of enlarged prostate and diseased bladder; these symptoms have become more urgent within the last year. Four months ago, previously to September 11, I first saw Sergeant Dutton, he then made water frequently, in small quantity at one time, after much straining attended with pain shooting from perineum up to pubis: up to the present time he has had different attacks of increased pain and difficulty in passing urine, attended with exacerbations of fever: he has taken with considerable benefit Tr. Ferri. Mur. has had leeches frequently, hip-bath. Complains of knawing pain in stomach, flatulence, pain shooting along groins, dull pain in loins, urine flows freely, urine thick, depositing a copious mucous sediment; bowels free.

September 11.
Tr. Ferri Mur. at intervals.
Sp. Æther. Nitr. c. P. Opii. in mucilag.

13th.
V. S. ad ℥xxiv. Calomel. gr. x.
Opii gr. j. salts ʒiv. Magnesia gr. x post 4 hor. Omit other medicine.

Increased pain in loins and groins, pressure over site of descending duodenum gives pain; great flatulence; testicles feel as if squeezed, so much so that he is prevented walking; pulse quick, resisting pressure. Skin warm, feels sick and languid. Novr. 2d. Cup of blood cupped and slightly buffed, pain across abdomen, urine passed in a stream with straining, pulse quick, tongue moist.

14th.
Calom. gr. x. Opii gr. i.
Salts Magnesia mane.

Pain, and straining to pass urine less, frequent micturition 4 oz. at a time, thick mucous urine; bowels free, pulse quick; reduced in strength; slept well.

15th.
P. Haust. Aper. mane.

Slightly salivated; symptoms the same.

16th.
Capt. Acid. Mur. ♏.iij. Tr. Opii. ♏. viij. ex. Aq. ter die.

Sept. 17th. to Oct. 3.
Cream of Tartar with Magnesia pro re natâ. Tr. Ferri mur. p. r. n.

Has complained chiefly of pain shooting through neck of bladder after urinating; urine flows pretty freely, sediment increased; bowels free; tongue has been clean; skin generally clammy; pulse feeble, soft.

	Has had several attacks of fever, has taken the acid mixture.
Oct. 3rd. Calomel. gr. iss. Ant. Tart. gr. ¼ 4tis. hor. Potass. Supertart. Magnesia. pro re natâ. Omit acid.	Pain in loins and groins, urine passed with difficulty and much straining; redness and heat of testicles; bowels open, cupping to loins.
4th. Rept. pil. Cal. et Ant.	Pain principally in right groin, testicles tender.
5th. Even. Pil. Cal. et Ant.	Pain less since cupping, passes urine about four times a day, the same at night with and without straining, in a stream at times, copious sediment in urine (mucous ! drying it, nothing remains,) pulse low, skin cool, perspiring, slightly salivated.
7th. Even. Pulv. Doveri gr. viij. P. Ant. gr. iij. Hydr. c̄ Cretâ gr. iij. M. ft. Pulv. 4 tis hor. Sumend.	A fixed pain across loins, chiefly on left side, spleen not affected, urine passes in drops, sediment dark colored; bowels free; skin wet; pulse feeble; is nauseated, slightly salivated, is very restless. Hirudines xij. to loins on left side.
11th. Even.	Great straining to pass urine, with pain in head, heavy pain in loins, has been feverish since 4 o'clock; is very low and nauseated; pulse small, has had a copious dark colored stool; passes urine four or five times a day, one or two wine glassesful (?) at a time, urine highly colored.
12th Morn. Cream of Tartar drink. ℞. Hydr. c̄ Cretâ gr. j Pulv. Ant. gr. ij. Pulv. Dov. gr v. 4 tis hor. Warm bath.	Feels a darting pain through groin and loins when he makes water; bowels well open; skin cool; pulse natural; tongue furred; head feels light.
14th. ℞. Hyd. c̄ Cretâ gr. i. Ant. pulv. gr. i. Dov. pulv. gr. iiss. 4 tis hor. Ol. Ricini cras mane. Magnesia and Cream of Tartar, pro re natâ.	Pain in head shooting from groin to loin, whilst straining at stool; pulse low; skin moist; tongue clean. Had fever last night, is slightly salivated; is nauseated. Has vomited; had a warm bath last night.
16th. Even. Cupping to loins. ℞. P. Dov. gr. iv. Ant. Pulv. gr. iv. 4tis. hor.	Great pain in loins in act of passing urine; urine scanty, thick and mucous; bowels free; tongue moist, furred; skin moist; pulse feeble; anxiety of manner.
17th. Pulv. Ant. gr. iv. Dov. pulv. gr. ij. 4 tis hor. Jalap, Cream Tartar.	Pain in loins less, urine more free; bowels confined.

Oct. 19th. Even. P. Ant. and Doveri Pulv. A purge in the morning.	Pain on pressure over sigmoid flexure of colon, a lump is felt there, pain in pressure over loins, makes water five or six times a day, now in a stream, now in a contracted current, with pain in loins ; has passed dark offensive stools ; skin hot ; pulse small, tongue broad, moist and flabby ; has felt light-headed to-day, his countenance anxious, has been sick ; saliva runs from his mouth.
20th. Even. Pt. Antimony and Dover's powder.	Bowels well moved after an injection.
21st. Ant. gr. ij. Dover's powder gr. ij. 4 tis. hor. Hartshorn and oil. infricand.	Pain after urinating in pubis, in groins, in loins, in head ; pain on inspiration behind on left side below margin of ribs, has passed urine in a contracted stream in the night and to-day. Several stools in the night and this morning ; pulse feeble, fever and perspiration last night ; has started in his sleep dreaming, is nauseated to-day.
22nd. Even.	Pain less ; makes water four or five times, sediment is less ; bowels free ; pulse small ; skin moist ; tongue moist ; is nauseated but cheerful.
23rd Even., P. Med.	Urine more free. He had fever last night, secretions from bowels unhealthy.
24th. Ant. Pulv. gr. ij. Doveri Pulv. gr. ij. 4 tis. hor. Hartshorn and oil infricand.	Pain shoots to loins, pain in head, whilst passing urine ; urine flows in a contracted stream, then suddenly by drops ; bowels moved by castor-oil ; vomited last night. Five o'clock P. M. experienced a chilly sensation of his feet, followed by perspiration. Nine o'clock P. M. complained of a heavy pain in brow and at occiput, a dull pain in loins ; skin moist ; pulse low ; tongue broad, flabby ; is much reduced ; stomach irritable.
25th. Pulv. Ant. and a purge.	Symptoms the same.
26th. Pulv. Ant. Liniment. Warm bath.	Bowels well moved.
28th. Magn. Sulph. ʒi. Potass. Supertart. gr. xij. bis die. Warm bath. Friction.	Has fever daily in the afternoon, a chill followed by heat and perspiration ; pain is less, generally greatest on pressure over left kidney behind ; yellow bilious stools from castor oil.
30th. Cal. gr. x. Ipecac. gr. ij. Ext. Hyoscyam. gr. iv. M. ft. Pil. febre urgente Sumend.	Great straining and pain in head whilst passing urine ; pain in loins, in groins, and tenderness of testicles during fever ; passes urine with great difficulty ; bowels free ; skin now moist, cool ; pulse small ; tongue moist : fever yesterday at 3 o'clock P. M. saliva flows. A purge of magnesia and cream of tartar ; warm bath, cupping to loins.
31st. Ol. Ricini ; warm bath. Leeches to testicles.	Severe pain in urethra whilst passing urine ; mouth feels sore. Fever yesterday at 6 o'clock P. M. testicles tender, swollen ; skin moist ; pulse small.

Nov. 1st. Leeches xvj. to loins, warm bath. Cal.gr.v.Ext.Co.c.gr.x. Ant. Pulv. gr. iij. st. Jalap. mane.	Pain in loins and groins in passing urine, bowels free. Evening, coughing and inspiration occasion pain in iliac regions; bowels not free, fever present, he has been ordered all along not to drink much.
2nd. Even. Antim. Pulv. gr. iij. Doveri Pulv. gr. iij. 4 tis. hor. Cream Tartar drink.	Slept well; last night vomited after taking his medicine; dull pain in each iliac region; urine scanty, passed with less pain, pale and clear; bowels free after medicine; pulse quick, small; skin moist, cool; tongue moist.
4th. Pt. Antimony and Dover's powder.	Pain in making water less; perspires freely. Tr. Ferri Mur. now and then relieves difficulty of passing urine.
5th. Pt. Med.	* Pain shooting to kidneys whilst making water, constant pain in loins; urine scanty, passed with difficulty.
6th. Morn. Calomel. gr. x. Opii. gr. i. Leeches to loins; warm bath.	Pain on pressure over iliac region and front of kidneys; he was restless in the night, bowels open; skin hot; tongue clean; pulse natural.
7th. Catheter, leeches to perineum, warm bath.	Introduced catheter to look for a calculus. I had no doubt of the existence of diseased prostate bladder and kidneys. Catheter passed without difficulty, at the prostate the passage felt obstructed and as if twisted; moving the catheter in the bladder its end seemed to rub against a cartilaginous substance; upon removing the instrument clear urine followed. Evening.—After introduction of catheter great pain was felt in attempting to pass urine; pain shooting to kidneys; pain in head; pain and tension over pubis; rigor and fever followed introduction.
8th. Sod. Carb. gr. v. Dover's powder gr. iv. 4 tis. hor. warm bath.	Urine scanty, passing with great pain; pulse quick, small; tongue moist; skin warm; eye dull, yellow; countenance haggard; great debility; bowels open.
9th. Soda & Dov. powder. Cream of Tartar in barley water. Warm bath. Pt. Ferri Mur. pro re natâ. Calomel. gr. x. Opii. gr. i. to relieve pain (pro re natâ.)	Five o'clock P. M. Pain in head whilst straining to make water, pain in iliac region, pain in loins; urine scanty passed with severe pain; bowels open from castor oil; pulse small, quick; skin warm; tongue moist; stomach nauseated.
10th. Even. Jalap and Cream of Tartar purge.	He vomited last night; urine scanty, flows in a fine stream; tongue furred, moist; skin cool; pulse small, feeble; bowels not open.
12th. Morn. P. Soda and Dover's powder, Calomel and Opium pro re natâ.	Vomited last night; severe pain in head whilst straining to pass urine, passed half a pint of pale thick urine at eight sittings, almost drop by drop; bowels not free; pulse quick; eyes heavy: warm bath, a purge.

Nov. 13th. P. Med. Alkalin.	Pain in pubis and at end of penis; frequent calls to pass urine, mucous sediment in urine; bowels free; tongue furred in centre.
15th. P. Med. Warm bath.	Pain less; flow of urine more free; bowels open.
16th. P. Med. Alkalin. An Aperient.	Great pain in penis in passing urine, pain and lightness in head; bowels not free.
17th. Even. P. Med. Alkalin. An Aperient.	Bowels not well open; skin hot; pulse quick, thready.
18th. Ext. Hyosciam. gr. iv. Ipecac. pulv. gr. ss. 4 tis. horis s. Liq. Potass. ♏. v. ex aq. 4 tis. hor.	Five o'clock P. M. Pain in passing urine, urine very scanty; bowels open; skin hot; pulse quick, small, soft; mind confused: hot bath.
19th. Liq. Potass. ♏. x. 4tis. h. Ol. Ricini. Pil. Hyosciam. et Ipecac. 4 tis. hor.	Five o'clock. Severe pain in head from straining; urine flows in a stream for a minute then stops; bowels open; pulse feeble; tongue moist; rigor and fever, sickness.
20th.	Pain in head and loins in making water; urine small quantity; heat of skin; feeble quick pulse; giddiness, anxiety.
22nd. Liq. Potass. xv. 4 tis. hor. Pt. Hyosciam. Ipecac.	Bowels opened by magnesia, sleep disturbed, symptoms the same.
23rd. Even.	Slight dull pain in penis, pain in loins from turning in bed, pain on pressure over iliac region in front; pulse quick; tongue furred, red at edges; heat of skin; he is in, almost, a state of stupor.
24th. Morn. Liq. Potass. ♏. xx. Tr. Opii. ♏. iv. 4 tis. hor. Ipecac. gr. ss. Hyosciam. gr. iij. 4 tis. hor. in jelly.	Says he feels easy, urine is pretty free; he replies to questions with great effort; suffers great flatulence; he is much purged; color of stools yellow, green, black; he has been taking magnesia and cream of tartar; pulse feeble; tongue moist.
Even. Liq. Potass. sine T. Opii. Omit. Ipecac. et Hyosciam.	Tenderness across epigastrium in each iliac region; bowels less lax; pulse quick, soft; small, belly much sunk in; he is sick; lies in a state of stupor.
25th. Morn. Fotus. ℞. P. Ipecac. gr. ¼. Ext. Hyosc. gr. iss. Mist. Cretæ C. ℥j. Tr. Opii ♏. iv. 4tis. horis. Omit. Liq. Potass.	Vomited in the night; eyes sunken; severe pain in epigastrium; passes urine without pain, passes thin yellow, feculent slimy stools, without griping, with much wind; pulse easily compressed; tongue clean, moist.
26th. Morn.	Stupor—replies when aroused; complains of pain in loins; urine passed with difficulty; frequent thin slimy feculent stools; pulse feeble, quick; mouth and tongue dry.

Even. Mist. Cretæ sine Opio. Sago.	Is easy ; stupor ; a wine glassful of urine at one time passed with stool ; pulse quick, sharp ; heat of skin.
27th. Even. Mist. Cretæ, jelly, tea.	Stupor—is sensible when aroused ; slight pressure over hypogastrium gives great pain ; passes a small quantity of urine three or four times a day ; small thin yellow stools ; pulse quick, small, resisting pressure ; heat of skin.
29th. Morn. P. Mist. Cretæ.	Stupor—face and extremities became cold last night ; had hiccup, great pain in hypogastrium and left iliac region ; thin yellow stools.
Even.	Chilliness of surface of body, mouth dry ; passes in small quantity clear pale urine in a stream with less pain.
30th. Even. Mist. Cretæ. c. Opio.	Urine more free ; thin yellow and green stools ; faints from action of bowels ; there is stupor.
December 1st.	Stupor—surface of body cool, tongue and mouth dry ; pulse feeble ; frequent loose stools,—is dying.
2nd.	Frequent stools during night : died this morning.

Post Mortem Examination nine hours after death. There was necessity for conducting it hastily.

Abdomen—Liver, extensive strong adhesions of liver to lining of diaphragm and ribs, its texture of a nutmeg appearance. *Kidneys*, both exhibited one and the same appearance, they were considerably enlarged, surrounded with a quantity of hardened fat ; removing the fat, their external surfaces were of marbled appearance covered with patches of congested vessels ; dividing the kidneys, the parts formed by the tubuli uriniferi vascular, the mamillary processes congested, of a purple color, pelvis of kidneys vascular, in different parts of both kidneys near their surfaces were found cavities of the size of a large spanish nut, lined with a membrane containing fluid, in other places near the surface cavities of the same size, containing loose, yellow, globular jellylike bodies, were found.* *Ureters*—Their mucous lining throughout vascular, more highly so near entrance into the bladder, where the calibre of each was considerably augmented. *Bladder*—A quantity of clear urine passed from the bladder upon pressure during examination, fundus of bladder externally, as to its peritoneal covering, for the size of an egg, of a purple color, this covered a cavity full of healthy pus, lying between the peritoneal and muscular coats of bladder, mucous lining of bladder vascular but not ulcerated, muscular coat a quarter inch thick, presenting a basketwork-like appearance. *Prostate gland*—Posterior or middle lobe projected into cavity of bladder, of the size of a walnut ; this when cut was of a firm gristly nature, and must have overlapped completely the orifice of the urethra ; the two lateral lobes very much enlarged, of the same texture ; two small red flat (granular externally,) stones were found in bladder.

Intestines—Lower foot of ilium externally smeared with lymph and of a purple color, internally mucous membrane of a purple color, in raised highly vascular patches, blood appeared to be extravasated beneath the membrane at these patches, this morbid condition extended throughout the whole lining of large intestines more or less, the mucous membrane of duodenum was in places of a red congested appearance.

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* See Nos. 269. 270.

Stomach.—Externally of a blue color, mucous membrane of great curve, of a blue congested appearance, of lesser curve, red and vascular.

SCROFULOUS (TUBERCULAR) DISEASE OF KIDNEY, BLADDER, PROSTATE AND INTESTINES. (*See No.* 222.)

(*By Dr. Green—Midnapore.*)

Mr. Shiels came under my care May 1st, 1836. Age about 23, hair dark, complexion pale, had a severe fever at Moradabad during 1834, has been subject to a pain across his loins, more particularly on the left side, for two or three years, which has been attributed by one medical man to diseased lung, by another to diseased spleen. Has been now unwell since the beginning of January 1836. (Mrs. S. returned to him about that time.) He is a surveyor, and has been compelled to sit for many days together calculating. During February and March he was subject to great pain across loins, for which he was rubbed there every night; during April has had no pain, but a dull heavy sensation there.

May 1st to 7th.
Purges of salts and Castor oil.
Acid. Muriat. Dilut. c. Tr. Opii.

Makes water twenty-five or thirty times during the day, attended with pain at pubis whilst passing urine, and at glans penis afterwards; he has constant pain in the perineum of a shooting description, much straining at stool, has generally pain across the loins; the urine flows in a stream at first, then suddenly stops and passes in drops: the urine of a rather pale color mixed with mucus; tongue clean, skin moist, damp; pulse quick; capable of work; appetite good. Passed catheter, perceived obstruction, slight, at prostate; frequent leeches, and hip bath.

7th to 14th.
P. Med. Acid. &c.

Seat of pain much the same, passes his urine with great pain and increased difficulty, less frequently and in less quantity, in short currents and drops; quality of urine the same; region of bladder distended and very painful as urine accumulates; skin usually cold and covered with clammy perspiration; pulse rapid, soft; tongue clean, pale; he has had during the week a severe paroxysm of fever attended by delirium. Passed a catheter again,—frequent leeching and hip bath.

15th to 21st.

During this week passed a catheter daily, twice, with severe pain to him; passed a seton through perineum; urine passes at first through catheter like thin chalk and water stained red, then comes limpid urine, the last few drops following exit of catheter thick and like matter. There appears to be a strongly spasmodic contractile state of neck of bladder; the prostate is felt enlarged by the finger passed up the rectum, which operation occasions great pain. There is perceptible distension of perineum, great pain is felt at pubis and in perineum; he generally sleeps for several hours, after the drawing off of urine by catheter.

May 15th.
Tr. Ferri Mur. ♏. x.
Tr. Opii. ♏. v. om. hor.

With a view of procuring a discharge of urine without necessity of passing catheter. Before expiration of a week, I changed this for Tr. Opii. Sp. Œther. Nit.; leeching, hip bath.

21st to 25th.
Omitt. Sp. Œther. Nit.
Capt. P. Ipecac gr. iss.
Ext. Hyosciam. gr. iv.
4 tis. hor.
24th.—20 leeches to perineum.

Seat of pain as per last; urine passes through catheter without pain, state of urine the same; state of pulse, skin, tongue the same.

From 21st catheter was left in urethra at night for several times, pain more particularly at left side of pubis and left iliac region; he could lie best on his left side.

25th.
V. S. ad℥xx. Opii. gr. ij.
Calomel. gr. x. st.
Pt. Pil. Ipecac. et Ext. Hyosciam.

I was called up last night. Mr. S. had excessive pain over bladder, he could not bear the slightest touch on it; he had pain on slight pressure over left kidney. He could not pass a drop of urine; urine drawn by catheter, at this time scanty in quantity, thick and white; pulse rapid; skin warm. In two last cups blood buffed and cupped. Drew off water at night but did not leave catheter in urethra.

26th. Morn.
P. Pil. Ipecac.

Drew off urine.

Even.

He was in an irritable state, weight over eyes, pain in head, probably from the opium, he suffered great nausea from the ipecacuanha pills, great pain from the seton. The pain of the seton prevented the evacuation of his bowels. I removed the seton, passed catheter.

27th.
V. S. ad ℥ xx.

I was called up very early this morning; he suffered great pain in his bladder, he could not pass a drop of urine, he had been delirious during night; pulse quick, of some strength. Blood buffed with a small firm deep cup, an evidently highly spasmodic state of neck of bladder, evident obstruction from prostate. After bleeding, a death-like faintness lasted for several hours.

Calomel gr. 3 4tis. hor.

12 *o'clock merid.* Subsultus tendinum of body and face, commenced mercurial friction.

Even.
Opii. gr. Tr.
Calomel. gr. xx.

Pain in bladder has returned, clammy perspiration on body, he is very low; passed catheter.

28th.
Calomel. gr. x.
Opii. gr. i. and rub in mercury.

He had but little subsultus during night; he lay in a drowsy state, eyes half closed, mouth half open, face deathlike; he has but very little pain in passing urine; urine flows in a stream, limpid, tongue foul.

During day he became very low, gave him laudanum with Liq. Ammon. in Camphor mixture. Bowels confined for two days; at night gave a few drams of castor oil.

May 29th. His bowels have acted several times in night. Called up in night. I gave. Tr. Opii. ♏. xv. to check purging. He is salivated this morning. Tongue is cleaner, moist ; pulse quick, soft, regular ; he has passed bloody-looking and sloughy mucus during the day, and on the night of 30th ; gave him Tr. Opii. and brandy in sago, quinine and opium. Passed his urine in a stream during the day and on the night of 30th.

30th. He is sinking, there is still distressing irritation and pain in bladder ; he rubs his penis continually, he passed a few drops of pus by urethra to-day. 3 o'clock P. M. he died.

Post Mortem Examination.

A few hours after death, (detailed from memory after a considerable interval.) The abdomen only allowed to be opened.—*Bladder*, muscular coat very much thickened, presenting a basket-work appearance. *Prostate*—two lateral lobes very much enlarged, composed of a hard white homogeneous substance, two orifices (out of prostatic portion of urethra) communicated with a cavity in body of prostate from which pus poured out upon pressure : vesiculæ seminales were full of scrofulous pustular matter. *Ureters*, fibrous walls considerably thickened, full of pus ; ureters enlarged in calibre, mucous membrane of ureters vascular ; several scrofulous abscesses in substance of each kidney. *Bowels*, deep purple, and highly congested state, of mucous membrane of large intestines, here and there raised pustules and ulcers on mucous membrane.

CALCULI IN BOTH KIDNEYS—ULCERATION OF URETER FROM PASSAGE OF STONE TO THE BLADDER—DEATH FROM PURULENT EFFUSION AND PERITONITIS. (*See No.* 791.)

(*From College Register—by Mr. Andre.*)

Sept. 28th.
Venæ Sectio ℥xx.
Hirudines xxiv. abdomin.
R. Ol. Ricini ℥j.

Ol. Tereb. ʒvj.
Aq. Menth. Pip. ʒj. ft. Haust. Statim.
6 P. M. Ol. Ricini ʒj.
Ol. Tereb. ℥j.
Aq. Tepid. iss. ft. Enema. Stat. Sumend.

Admitted into the College Hospital yesterday at 3 P. M. Peter Low, a robust somewhat plethoric European seaman, native of England, complaining of acute pain about the abdomen, considerably increased by pressure, the pain most severe in the region of the epigastrium ; states that it first commenced in the right hypochondrium, and four days ago extended itself all over the abdomen, which is tense and very tender ; face flushed, and expressive of great anxiety ; loss of appetite ; very costive bowels, had no stool for the last two days ; tongue loaded with a white fur ; stomach very irritable, inability to retain food, either solid or liquid, and skin hot ; breathing difficult and heavy, restlessness and sleeplessness ; draws up his legs when lying down, so as to relax his abdominal muscles as much as possible ; the liver could be felt enlarged, and occupying the whole of the epigastrium and left hypochondrium. Pulse quick, hard, and full ; he vomited the dose of castor oil and turpentine ; fainted after the removal of ℥xx. of blood. Patient says, he feels much better this morning : pain still continues.

29th. Abdomen to be fomented. Sub. Hyd. gr. x. Ext. Opii. gr. ij. Statim. Pulv. Jal. Co. ℥i. post hor. vi. s. Ol. Ricini ℥j. Aq. Menth. Pip. ℥j. post hor. iiis.	Patient breathing free; enjoyed a few hours sleep ; bowels not moved at all, save the escape of the injection with slight admixture of fæces, the blood removed was cupped and buffy ; is able to lie straight in bed; skin cool, and moist ; pulse quick and sharp ; tongue furred in the centre with red edges and tip ; irritability of stomach continues, rejects any liquid he takes; excessive thirst, a degree of anxiety still continues.
30th. Hirud. xij. abdom. Antim. Tart. ℈j. Aq. ℥xx. ft. Enema. Statim. Subm. Hydr. v. Ext. Opii. gr j. ft. Pil. tertiis horis s.	Patient received the prescribed remedies without any effect ; bowels not acted on ; abdomen very tender about the cœcum and ascending arch of the colon ; tongue white ; stomach very irritable ; no appetite ; passed a restless night ; skin hot, as likewise the abdomen. Pulse quick and full ; face flushed ; extreme anxiety depicted on his countenance.
Oct. 1st. R. Ol. Ricini ℥j. 6 A. M. Ol. Tereb. ℥j. Aq. Menth. Pip. ℥j. ft. Haustus Statim. 8 A. M. Pulv. Jal. Co. ʒj. Statim. Continue Pills.	Had thin watery evacuations yesterday from the enema ; profuse diaphoresis ; passed a restless night ; no pain in his abdomen ; stomach very irritable ; rejecting food and remedies ; and is excessively troubled with hiccough ; tongue furred, white ; pulse quick ; skin cool and moist ; fingers somewhat twitched ; anxiety, sleeplessness, and restlessness continues.
2nd. Liq. Lyttæ. ad Epigastrium. Hydr. Sub. gr. x. Ol. Tiglii. gtt. 4. Statim. If the bowels are not acted on— Ant. Tart. ʒj. Aqua. ℈j. ft. Enema. R. Am. Carb. ℥j. Mist. Camp. ʒviij. ft. Mist. ℥j. every hour, should the patient be low.	Patient is not better this morning ; passed a restless night ; bowels not acted on at all by the medicine ; had only one watery evacuation, being merely the return of the enema ; vomited several times during the day ; hiccough very troublesome ; skin bedewed with a cold clammy perspiration ; tongue furred, white ; fingers twitched ; no pain in his abdomen. Pulse quick and rather small ; great anxiety, and restlessness with irritability of stomach continues.
3rd. Ol. Ricini Ol. Tereb. ℥j. Aqua. ℥ ij. ft. Enema, to be administered by means of the tube which was passed up about two feet. Ether. and Liq. Opii. Sedat. Mixture, to be given occasionally.	Patient is rather low this morning ; desponding, great anxiety, restlessness, sleeplessness ; bowels moved once ; hiccough very troublesome ; skin covered with a cold clammy perspiration ; tongue furred. Pulse quick, small and fluttering. Bowels acted on only once by the enema, the evacuation consists merely of the oil and water which was thrown up. Patient was considerably distressed when the tube, which was introduced into the rectum, reached as high as the transverse colon, he however after a short interval felt somewhat relieved from its introduction. Skin moist ; countenance very anxious. Pulse very small and quick.

2 P. M. Patient is very restless; hiccough very troublesome; extremities cold and clammy. Pulse very rapid; bowels moved only once, similar to the last; stomach very irritable, rejecting all his draughts.

5 P. M. expired.

Post Mortem Examination.

Chest.—All the organs in the chest were perfectly healthy.

Abdomen.—Processus vermiformis was ulcerated, as likewise a portion of the right ureter; firm adhesion between a portion of the two, and surrounding cellular tissue. A good deal of pus was diffused on the intestines through the ulcerated ureter. The kidneys were greatly diseased; both contained numerous abscesses, the left kidney contained four calculi; intestines quite healthy in appearance, only highly congested. The bladder contained a calculus of a very irregular shape, somewhat resembling a rusk, the stone was perfectly impacted; inner coat of the bladder of a very dark colour and considerably thickened; the little urine contained in the bladder was mixed with pus in a small quantity; the prepuce of the penis was considerably elongated and highly congested. Liver, spleen, and other organs looked healthy.

CASES OF RUPTURE OF THE KIDNEY AND SPLEEN.

(*By Dr. A. Campbell.*)

The first of Dr. Campbell's cases occurred in a recruit of the Horse Artillery, 22 years of age, who received a kick from a horse on the left side on the 10th November, 1828. He fell to the ground breathless, but sensible; and when brought into the hospital presented all the symptoms of having received some violent internal injury: the respiration was exceedingly difficult; the countenance pale, shrunk and anxious; the extremities cold, and the pulse was not perceptible at the wrist. He moaned frequently. A slight re-action afterwards took place, when he complained of great pain in the region of the spleen and hypogastrium. The next day the abdomen was much enlarged, and fluctuation was manifest; he had again sunk into a death-like condition, and he expired thirty hours after the accident. Upon dissection the abdomen was found to be filled with dark-colored blood. The spleen, much above its natural size, was broken on its surface into three separate portions, and resembled a mass of coagulated blood. The other organs were healthy. It is not known whether this individual had previously suffered from enlarged spleen or intermittent fever.

The second case was that of a syce of the Horse Artillery, whose horse reared and fell back upon him, crushing him under his body. The thigh-bone was fractured at its upper third, and the patient complained of great pain at the umbilicus and scorbiculus cordis, with laborious respiration and urgent thirst. The pulse small and weak, with natural heat of skin. He continued restless and tortured with pain for about five hours, when he expired. Upon dissection the abdomen, as in the other case, was found to be filled with dark-colored blood. The spleen was broken into a mass resembling coagulated blood. The left kidney was ruptured along the entire length of its convexity. No external signs of violence were observed; the spleen was of the natural size, but the ruptured kidney was larger than ordinary, and of an unusually pale colour.*

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* Appendix TRANS. of Med. Phys. Soc. Calcutta.

STOPPAGE TO URINE FROM STONE IN THE BLADDER—OPERATION.

(*By Allan Webb, Esq.*)

Nutha, Jemmadar; ætat 30; residence Busaro.

July 24. Complained of occasional stoppage of urine, pain in belly and at end of penis, sounded and struck a stone audibly; says duration of disease is seven months, *stone* examined between finger in rectum and sound in bladder, appears to be of considerable* size and rough.

29th. Stone was extracted at the Simla Hospital. The stone appeared lodged under the arch of pubis and was with difficulty got at. I found, although I operated with Key's straight staff, great difficulty in getting the knife along the groove, when the membranous portion of urethra had been fairly exposed. This arose from the *point* of the *knife* having *broken* off.

Operation at 9 A. M.

Midnight. Leeches xij. Hot fomentations Laudanum ♏. xl. gave complete relief. Called to him in great pain, heard his shrieks before I reached the hospital, though the man bore the operation without shrinking; found external wound plugged up with a clot of blood, and four or five ounces lost, (did not lose ℥ij. in operation,) cleared this clot away, felt that the bladder was free, introduced elastic catheter and left it there.

REMARK.—The pain caused perhaps by urine getting into the divided structures.

30th. Ol. Ricini. Cal. Ant. P. āā gr. v. Camphor gr. ij. ft. Bolus. "now." Passed a good night, urine comes away freely.

Evening a little feverish.

31st. Better; plenty of urine in night, no stool.

Aug. 1st. Doing well; no medicine.

2nd. Doing well; but little water comes away by the wound, granulations seen at the bottom of wound.

4th. Little fever, Liquor Am. Acet. mixture.

5th. Says no urine comes by wound, no fever, wound granulating.

6th. Doing well, meat diet.

15th. Nearly healed up.

17th. Discharged, quite cured on the eighteenth day from operation.

NOTE.—When a straight staff is used, take care of your knife that the point bulge enough.

GONORRHŒA—PERIOSTITIS FROM MERCURY—CATARRHAL INFLAMMATION OF BLADDER—DEATH FROM AMPUTATING A FINGER. (*See No.* 828.)

(*By Allan Webb, Esq.*)

Mr. M., ætat 50, merchant, came on board at Bombay, February 16th, 1834, with right hand extensively diseased, and his general health in a deplorable condition. Emaciated to a mere skeleton; countenance bloodless, but bloated, apparently œdematous; legs anasarcous; anxious expression of face; extremely irritable temper.

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* Measurement given—differed only half a line from actual size.

Hand generally swelled, fingers carrot-shaped, without motion, skin over them shining, flexor tendons forming a hard ball in the palm, sore on pressure, middle finger shortened half an inch, no feeling in the bone about meta-carpo-phalangeal joint, which is in fact gone, and its place supplied by soft flabby ulcerated flesh, with sinuses running along metacarpal space, in which the extensor tendon is seen sloughing, parts on back of hand so œdematous that there is no appearance of bone.

History indistinct. Says whilst at Singapore, contracted gonorrhœa, for which he took medicine which disordered his digestion; that then the doctor gave him mercury and rubbed it in, saying he had abscess of liver, which reduced him to so weak a state; he was sent to Ceylon from whence he came in the *Victory* to Bombay; that whilst in the *Victory* he suffered from diarrhœa and profuse sweats, and was so weak he could not get across his cabin but with a stick, that the pressure of the stick produced inflammation of the hand, that at Colabah the surgeon lanced it, and got a little matter where the wound now is, and then advised him to go home.

Has been leeched and bled for clap, used injections, bougies, cubebs, copaiba, &c., without effect.

By careful support with compress and bandages, opening sinuses wherever matter collected, dressing with Ung. Resin. and Emp. adhesive, occasional use of Lunar caustic and Cupri Sulph. hand was well in a month except anchylosis of middle finger.

He had nourishing diet and bowels kept open.

A bougie passed every morning relieved the clap or gleet.

Took the Bochu leaves in infusion a month with no benefit.

In this improved state he landed at the Cape of Good Hope, 21st April, 1834, improved exceedingly in flesh and strength. He there consulted some medical man, who gave him pills and Sarsaparilla, the consequence was, he was salivated profusely; in about a fortnight after he came on board again, and his gleet was worse than ever. His foot became so tender he could hardly walk, and I feared he would have the same kind of disease there as in the hand.

Ext. Hyos. gr. x.
Camphor gr. iij.
H. S. O. N.
June 16th, 1834.
Liniment. Saponis Tinct. Opii. Part. equal. ft. Lin. to be rubbed over Pubis.
Laudanum ʒj. in Camphor Mixture.

June 1834. A new order of symptoms have set up. He complains of acute pain an inch from the end of his penis. Pain in hypogastric region; frequent desire to make water, preventing sleep at night, and increase of pain *after* voiding urine. Urine opaque, flaky, copious white sediment, apparently of phosphate of lime. Catheter passed to examine bladder, created so much heat and pain I was forced to withdraw it. Discharge from urethra considerable; digestive organs and pulse little if at all affected. Motion, as walking, increases pain.

Called to him in the night, distracted with pain, though 15 grs. of Ext. Hyosc. had been taken at bed time. Pulse feeble, skin cold.

17th.
R. Acid. Mur. ʒiij.
Tinct. Opii. ʒj
Syrup ℥iij.
Aquæ ℥xvi.-℥j.
4 tis. horis sum.
Rest in bed; farinaceous diet.

Remained quiet and slept since I left.

18th.
Bowels confined.
Ol. Ricini ℥j.

Slept well; water clearer; little return of pain.

19th. Pt.

Slept well; water improved.

20th. Pt.

Much the same.

30th.

Landed much the same in England. The hand perfectly sound, but with stiffness (anchylosis) of middle finger, which he had frequently intreated me to amputate. No pain in bladder, but urine still mixed with mucus and pus.

And for this complaint in his bladder he wished to be put under the care of some eminent London Surgeon. On arrival I took him to Mr. Laurence, to whom I explained the circumstances of his case; his desire to have his finger removed, and my objections, as I conceived it could only be followed by disease of the stump.

I left him in Mr. L.'s care. On my return to London after a fortnight's absence, I called at his lodgings, and enquired of him of the landlady, when to my great astonishment she informed me he was dead. That in his last moments he had frequently repeated, "Ah, if I had but listened to good advice." Mr. Laurence it appears had amputated the finger. Hemorrhage from ulceration of the artery did come on two days afterwards. Mr. Laurence was not in town, and before he could get assistance his bed was soaked through, he was found gasping and tossing about, and only lingered out the next day, in vain regret at his own obstinacy, and then died.

BURSTING OF URETHRA FROM CALCULUS—PUNCTURE OF BLADDER ABOVE THE PUBIS.

(*By Allan Webb, Esq.*)

Nov. 24th.

Was called by Mr. Loos to see a patient said to have had the bladder burst two days.

23rd.
Fomentations.

Report by Mr. Loos. "Came in morning of 23d. Penis and scrotum much inflamed and painful. Man states that he has suffered retention of urine for three days. Last night voided a few drops.

Noon.
Fomentations.

"A few drops of urine were found to exude through skin of the scrotum, bladder not much distended, attempts to introduce catheter were unsuccessful from obstruction at glandular portion (from great restriction of penis under swollen and mortified prepuce.) Purulent discharge from urethra."

24th. Saw the scrotum of a deep red and black color, much swollen, angry red blush half way up to the umbilicus, bladder enormously swollen ; could not feel any presenting fluctuation through rectum, most likely from the coats of bladder being approximated, by its being drawn up out of the pelvis.

4 P. M. Punctured the bladder above the pubis, nearly five pints of urine evacuated through canula. Gave stimulants (ammonia) to the man, who had been comatose for some time. Pulse very feeble ; skin cold.

Liq. Am. ʒss. "every half hour" in Mist Camph. ℥j. Delirium, then coma all day, scrôtum mortified, perfectly black and the inflammatory redness of skin extends to the umbilicus.

25th. Pt. Lies in the same comatose state.

26th. Died.

Post Mortem Examination.

Only those parts concerned in the disease were examined.

Pelvis.—To examine this the pubic symphysis was divided, and the right lower extremity turned back. The parts in pelvis perfectly healthy, bladder was punctured about two inches from the reflected peritoneum. The strong pelvic fascia was inflamed and thickened, and offered a sufficient barrier to the pus and other matters effused into the perineum, which last as well as the scrotum, was a mixed bag, for matter and black jelly-like effusion, under the mortified skin.

(1.) A sound was introduced by the puncture, and directed from within the bladder outwards, another from the penis ; (2) they met in the centre of this boggy mass, caused by ulceration of the urethra. Where the canal opened, a small urethral calculus had just escaped. See Sketch, No. 3. (*Plate.*)

Remarks.—Puncture above the pubis is the most direct mode of relieving this state, as J. Hunter did, in similar circumstances. There was no dissection, but the trocar plunged in as for ascites, no effusion into cellular tissue, though urine flowed out freely for two days, or 36 hours.

EXPLANATION OF PLATE.

Side view of the pelvic organs in situ.

A Symphysis pubis.
B Sacro-iliac-symphysis.
C The Crista ilii.
O Thigh.
P Nates.
Q Abdomen.
D Abdominal muscles.
E Levator-ani.

F Penis.
G Urethra.
H Laceration.
I Stone.
K Prostate.
L Bladder }
M Rectum } covered with peritoneum.
N Intestine }

1 Staff entering laceration from the penis.
2 Staff from opening formed by trocar.
3 3 Depôts of pus.
4 4 Mortified Scrotum.
5 Peritoneum reflected off bladder and rectum.
6 Pelvic fascia.

LACERATION OF URETHRA—EXTRAVASATION—MORTIFICATION—PUNCTURE OF URETHRA—OF BLADDER ABOVE PUBIS—DEATH.*

(*By W. Raleigh, Esq.*)

The subsequent case is one of the frequent examples of personal neglect and sacrifice of life to injudicious treatment, which present themselves at the General Hospital, too late for that relief, which might have been afforded at a more early period of their complaint.

M. D., a tall thin man, about fifty years of age, stated, that a month since he perceived pain at the perineum, accompanied by swelling, and that for the last seventeen days the scrotum and penis had been gradually enlarging; his urine passed very scantily, and latterly had been retained. When brought to hospital, the scrotum and penis were distended to the utmost possible degree; the perineum, nates, and upper part of the thigh, were also much swollen; the left half of the scrotum was gangrenous. Had had no stool, and passed no urine for three days; the abdomen distended, a disgusting odour issued from the affected parts; he was emaciated, but had a firm pulse; he was placed in the position as for the operation for lithotomy, and an incision made in the perineum on the left of the raphe, through which a large quantity of urine and pus flowed, the catheter passed through the penis issued at the incision in the perineum, but I found it impossible to distinguish the urethra so as to pass a catheter into the bladder, from the opening in the perineum, three incisions were made in the most depending part of the scrotum and another along the penis.

The whole of the diseased parts were then enveloped in a poultice of linseed meal, in which was mixed Spt. Camphor ℥i.

21st January, A. M. A large quantity of urine, pus, &c. have drained out, and the parts are much less swollen. I tried again, without success, to find the urethra through the opening in the perineum. Poultice continued. R. opii. gr. ss., Quinine gr. iis. every two hours. Diet, sago and wine.

22d. Does not appear to have passed any urine: the belly is distended and emphysematous, communicating a crackling sensation on pressure with the hand. In consultation it was considered advisable to puncture the bladder above the pubis, and keep in a canula. ℥x. of urine were drawn off: medicine and poultices continued.

27th. To this day his pulse has kept up: the gangrenous part of the scrotum has separated, and the exposed testicle and edges of the scrotum look well.

28th. Diarrhœa—thready pulse, and exhausted expression of countenance: the integuments of the belly and groin are puffed up, and the crackling sensation commonly felt where mortification is advancing, is distinguishable over the lower half of the belly, &c.

Died on the 30th.

Post Mortem Examination.

On dissection the cellular structure of the perineum, that covering and intersecting the muscles as high up posteriorly as the top of the sacrum, and anteriorly as the anterior superior spinous processes of the ilia, extending, on each side, some way over the thighs, was in a state of gangrene: the urethra from the root of the penis to the neck of the bladder, was completely destroyed, and at these diseased extremities the canal was ragged and of dark colour: the bladder contracted, its coats much thickened, and the prostate gland enlarged; the puncture made with the trocar closely surrounded the canula, and no mark of inflammation caused by the operation, or allowing the canula to remain in the bladder, was apparent.

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* From India Journal Medical and Physical Science, 1834.

Nothing unnatural was observed within the abdomen above the pelvis.

LACERATION OF URETHRA—EXTRAVASATION—MORTIFICATION—DEATH.

(*By Dr. Green of Midnapore.*)

X. Y. a prisoner, 80 years of age, was admitted into Hospital on the morning of October 23. His symptoms as follows: swelling of the integuments of penis, pain on making water in perineum, shooting thence to pubis and along penis; his urine dribbles from him at short intervals, each time attended with a return of pain; his tongue brown and dry, pulse feeble. He says he had a similar attack ten years ago. I ordered 20 leeches to the perineum. Ol. Ricini. ℥j. Semicupium. Mucilag. Gum. Araba. ℥j. Tr. Opii. m. v. Sp. Æther. Nitr. m. xv. 4tis. hor. a dose of Senna and Salts to be given at night if necessary.

October 24th. The bowels have been freely moved during the night by the salts and senna, the leeches bled freely, the tongue is moist. This morning great feebleness of pulse, the same urgent symptoms: ordered to repeat both, to continue mucilage mixture, to drink freely of congee water: sago diet, blister to sacrum. Evening—I found the urine dribbling from the man, he was suffering great pain; passed a catheter with difficulty, and with a feeling of obstruction at the prostate gland; immediately a fœtid thin blood-like fluid issued through the catheter, afterwards urine slightly discolored passed; great relief was experienced from the introduction.

10 (at night).—Again attempted to pass the instrument, but failed.

October 25th. Urine trickling by drops, and great pain, skin dry, tongue moist, feeble quick pulse, the integument of penis considerably swollen; there is hardness over the region of the bladder and pain on pressing that part of the abdomen; passing the finger up the rectum the bladder is felt to descend more than usual into the gut: ordered to repeat bath; repeat mucilage with Sp. Æther. Nitr. Extract Opii. gr. ¼ 4tis. hor.

Evening—The catheter was passed during the day. The same fœtid bloody fluid escaped. The catheter has been left in the bladder at his own request; blood-stained urine flows through it; he is under the influence of opium; tongue remains moist.

October 26th. He removed the catheter himself during the night; there is stupor this morning which I attribute to the narcotic; urine escapes in drops from penis. The urinary organs appear to be in a state of turgescence; there is a defined bulging over the bladder in the hypogastrium, and also in the perineum, according with the track of the urethra, attended with great pain on slight pressure: ordered to omit opium, to repeat mixture and bath, to take Ol. Ricini. ʒvj. to get an enema of Tr. Opii. ʒss. in congee water.

Evening—Much the same; bowels have been moved, stools healthy: ordered to repeat gr. ¼ of opium, bath, passed catheter with the same result as before.

October 27th. The system the same ; he is sinking.

October 28th. He died very early this morning.

Post Mortem Examination seven hours after death.

Upon dividing the abdominal parietes, the cellular tissue and fat covering the abdominal muscles, and extending over the iliac and hypogastric regions, found in a state of slough, infiltrated with pus, a little sanious fluid ran off during the incision of the part ; internally the parietes adhered to the bladder which was distended ; but upon separating them with the fingers the abdominal peritoneum appeared entire. The bladder presented externally a purple color, its proper peritoneal covering easily separated from it, exhibiting the fat and structures between it and the bladder of a deep purple color, the large blood vessels going to the bladder were quite natural ; by pressure upon tbe bladder during the act of removing it out of the pelvis, the same kind of bloody fluid, which passed during life, poured from the penis (thus showing that the passage of the urethra existed.) Upon dividing the urethra close to the pubis (from within) with the view of removing the bladder, &c. a sloughy cavity, of the capacity of two walnuts, was cut into, a portion of the walls of this cavity was left adherent to internal aspect of pubis. This sloughy cavity surrounded the membranous part of the urethra. The walls of this cavity were partly formed laterally by the levator-ani muscles. Passing the catheter by the penis, then from the bladder outwards, in both cases the instrument presented itself in the centre of the sloughy cavity. Upon the division of the urethra, at least, a pint of the before mentioned thin blood, having a strong ammoniacal smell, escaped from the bladder. The mucous membrane of the bladder was of a deep-blue color, studded with granules, ulcerated superficially in patches ; it readily peeled off from the muscular coat and was not generally thickened ; about the neck of the bladder the membrane was smooth and natural, the prostate healthy, smaller than usual, the muscular coats of the bladder, from two to three lines thick, the individual fibres remarkably developed ; the vesiculæ seminales healthy, not at all implicated in the morbid structure. Dividing the perineum, the adipose tissue and muscles between the anus and urethra were found natural : upon cutting deep as in the operation for lithotomy, the tissue immediately around the course of the urethra was found discolored and sloughy —this condition of parts continued up over the front of the pubis to join the morbid state of the abdominal parietes. The membranous portion of the urethra lying in the midst of the morbid structure, had not its walls thickened ; the two divided extremities were ragged, but this I attributed at the time, to several strokes of the knife during the removal of the parts.

Remarks.

The description of the post mortem appearances may not be quite clear ; indeed, I am not myself prepared to say whether extravasation had taken place during life or not. I do not know how the sloughy state of the parts immediately around the urethra, throughout the greater part of its course, commencing from the membranous part, and the similarly morbid state of the abdominal parietes are to be otherwise explained ; and yet during life there was a passage, the urine passed by the proper course, and moreover, there was not found the usual diffused swelling such as occurs when the contents of the bladder escape. It is evident that the disease of the bladder must have been of long standing, and that no treatment could be of any avail. The thin dark blood found in the cavity of the bladder I apprehend exuded from the blood-vessels of its mucous membrane. There was not a state of the parts during life to warrant cutting down upon the urethra, particularly as the natural channel was open, and a catheter could be introduced. The walls of the sloughy cavity appeared to be chiefly the natural parts consolidated. This condition might have been the result of inflammation, produced by the long standing disease in the bladder, and thus a sac formed which prevented the diffusion of the extravasated fluid.*

RETENTION OF URINE; PUNCTURE OF BLADDER THROUGH SYMPHYSIS PUBIS.

(*By J. Brander, M. D.*†)

July 27, 1841.—Huddoo Mussulman, aged 60, admitted into the bazar hospital at Gorockpore on the 27th July 1841, with symptoms of complete retention of urine, which had existed for five days. Complained of pain in the lower part of the abdomen, and neck of the bladder; warm fomentations were applied, and a compound jalap powder administered.

The above was the report, and treatment adopted by the native doctor attached to the hospital,—the state of my health not admitting of my seeing him till the morning of the 29th July, when I found him laboring under complete retention, then of *seven* days' duration; the bladder much distended, being hard and well defined in its boundaries, and reaching to the umbilicus—(tender to the touch.) Pulse not much accelerated.

The patient stated that he had been subject to stricture of the urethra for fourteen years, and that on three previous occasions he had had retention of urine.

I passed a silver catheter into the bladder with some resistance, but no urine followed,—the instrument (which had a very *fine eye,*) being choked with coagulated florid blood. A purgative enema with castor oil was given; fomentations were applied to the abdomen; and the tincture of the muriate of iron, exhibited in doses of ten minims every half hour.

6 P. M.—Finding all palliative measures unavailing, and the state of suffering and distention of the bladder seeming to call for prompt relief, another attempt was made to pass the catheter, and with the same result, as at the morning visit.

29*th*, 6 P. M.—Fearing the consequences of any further delay after a retention of seven days, surgical relief became indispensable. The diseased state of the rectum, which was subsequently found to exist, and to render impracticable any examination of the state of the prostate through its parietes, much less the usual operation of puncture at that part, led me at once to resort to my newly-suggested operation of arriving at the bladder per symphysis pubis. Accordingly the cylindrical trocar and canula were introduced agreeably with the directions laid down in my paper, with this difference, that the patient was kept in the recumbent, instead of the semi-erect posture, and that no preparatory *incision* was made in the integuments, the instrument being introduced with scarcely more resistance and pain than in the puncture of the abdomen in ascites, and without the loss of one drop of blood. On withdrawing the trocar, a stream of limpid urine, possessing no ammoniacal smell, passed with force through the canula—in quantity about eight *ounces*. The patient expressed himself instantly relieved; the canula was secured in its position by a tape passed round the pelvis,—a proceeding however not required, seeing how fixed a position the instrument assumes.

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* India Journal Medical and Physical Science, 1836.

† Reduced from Appendix vol. viii. Trans. Med. and Phys. Soc. Calcutta.

Leeches were ordered to be applied to the pubic and hypogastric region, followed by warm fomentations.

10 P. M.—Found the patient composed; the leeches had bled well; an opiate was administered, and a warm cataplasm desired to be applied to the lower part of the abdomen.

30*th*, 6 A. M.—Slept indifferently, having been disturbed by the constant renewal of warm applications (employed by mistake, instead of the poultice)—and not from suffering pain or uneasiness. Urine continued to dribble away through the canula during the night, and early in the morning; he passed a few drachms of urine (colored with blood) *per urethram*. Finding the natural passage so well restored, I ventured to withdraw the canula, which was done without the smallest difficulty or suffering to the patient. Notwithstanding the evacuation of the urine from the operation, which, it is to be observed was far less in quantity than might have been expected from the long retention and distended state of the bladder, the latter retained its original size, with somewhat increased tenderness. Leeches were again applied to the same region, followed by warm fomentations, the patient's age and strength not admitting of more general depletion. Calomel and antimony pills were exhibited every four hours during the day, and sago given in small quantity at intervals.

6 P. M.—Patient much in the same state as at the morning visit; the bladder undiminished in size or tenderness; he had passed (by the natural passage) a small quantity of high colored urine twice during the day; four leeches were ordered to be applied to the pubic region, where there appeared to be some puffiness, and an anodyne draught at bed time.

31*st*, 6 A. M.—Passed a good night; tension and tenderness of the abdomen undiminished, especially in the situation of the leech bites. Passed a few ounces of muco-purulent urine per urethram, the artificial passage having spontaneously closed on the withdrawal of the canula. Bowels confined; pulse small and frequent. To have a dose of castor oil, and tartar emetic ointment applied over the region of the bladder.

6 P. M.—Patient much in the same state as the last visit. Bowels unmoved by the oil; pulse frequent; tongue slightly furred; complains of thirst; fomentations continued, the patient objecting to the repetition of leeches, from the soreness attending the former bites. To have an anodyne draught of camphor and Dover's powder.

August 1, 6 A. M.—Slept indifferently; passed a good feculent motion, also several ounces of urine, more charged than the former, with muco-purulent matter. Tenderness and tension much the same. Pulse and tongue ditto. Tartar emetic ointment and fomentations continued; a saline purgative was administered.

6 P. M.—Increased heat of skin; pulse 130; tongue dry and slightly furred; has slept during the day; had four dark colored stools; passes his urine involuntarily; tension of abdomen the same; bladder assuming a more defined and prominent appearance, arising probably from a wasting away of the abdominal muscles. Tenderness to the touch diminished, and expresses himself easier. Has had hiccups for the last three hours, unaccompanied by any

symptoms of anxiety ; says he feels no pain in the pelvic region ; has partaken of food ; ordered an anodyne at bed time.

2nd, 7 A. M.—Passed a good night ; hiccup subsided after two or three doses of ether ; passed urine voluntarily and involuntarily during the night, attended with some stranguary ; pulse frequent and small ; tongue furred ; complains of increased thirst ; bowels confined, tension of abdomen the same ; tenderness diminished.

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6th, 6 A. M.—Slept indifferently, kept awake by hiccup ; cough with expectoration ; complains of pain in the trachea ; respiration oppressed ; incontinence of urine ; pulse frequent and small ; bowels confined. To have four drachms of castor oil.

6 P. M.—Hiccup diminished ; cough and expectoration increased ; sputa of a black offensive nature ; abdomen less sensible and less swollen ; pulse small and less frequent ; complains of pain in the chest ; ordered Burgundy pitch plaister. Night draught and poultices as before.

7th, 3 A. M.—Expired at 3 A. M.

Autopsy six hours after death.

Previous to opening the body, a silver catheter was introduced into the still distended bladder, and as much urine drawn off as could be expelled by pressure on the abdomen, while in the supine position. The *bladder* on being laid open was found to contain about 16 ounces of limpid urine, free from any ammoniacal smell ; its muscular coat was thickened, and the lining membrane somewhat congested, presenting also numerous irregular processes or elongations, consisting apparently of condensed cellular membrane.* The *peritoneal* covering was in a perfectly healthy state.† *No traces* of the puncture visible either in the bladder or in the posterior aspect of the pubes. *Anterior* to it, however, a spot, large enough to admit the point of a probe pointed out were the trocar had been introduced.‡ The prostate gland was found much enlarged and schirrous, the third or middle lobe forming so great an excrescence as to present an insurmountable obstacle to the introduction of any instrument into the bladder, otherwise than through the substance of the gland, in which, accordingly, a false passage (made by the catheter) was discovered. A small calculus of on oval form, with granulated surface about the size of a bean, weighing eight grains, was found at the base of the bladder.* No traces whatever of extravasation of urine within the pelvis. The bladder was found in close contact with the bones of the pubis as the preparation confirms, one side only having been detached with the scalpel, for the purpose of tracing the course of the puncture, which, as before observed, was found to be entirely obliterated under the healing process.† The *trigon* was very circumscribed—not comprising more than half an inch between the duplication of the perineum and vesiculæ seminales.

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* It would appear that previous to death, the muscular power of the bladder had not been recovered, and that in its paralytic state, it was incapable of expelling beyond a very limited quantity of urine. The catheter was *not* resorted to again, seeing that the urethra was in a very irritable state, and that the natural passage had been established, and sufficient urine evacuated through it, to prevent any sense of pain or uneasiness to the patient.

That more urine did not follow the puncture per symphysim, may be accounted for by the trocar having been introduced at too great an angle with regard to the axis of the pelvis by which mal-adroitness after withdrawing the instrument, and not being provided with a suitable flexible catheter (as recommended) the bladder collapsed on the canula, and admitted only of the evacuation of a limited portion of its contents.

† This satisfactorily refutes one of the principal objections urged by the opponents of the operation of puncture through the symphysis.

‡ The difficulty apprehended to attend the healing of the fibro-cartilaginous substance uniting the bones of the pubes is equally well refuted, especially when it is understood that the instrument with which it was performed was in very bad condition.

The *kidneys* were very vascular,—the right one much larger than the left, and presenting an ulcer, the size of a shilling, on its outer and upper surface.

The *intestines* were apparently in a healthy state, notwithstanding the existence in the jejunum of fifteen unusually large worms of the teres kind.

The *liver* healthy ; the gall bladder distended with inspissated black bile.

The *lungs* were in an unsound state, and presented externally a remarkably black melanotic appearance.

CASE OF CALCULUS IMPACTED IN THE URETHRA—RETENTION OF URINE. OPERATION—RECOVERY.

(*By Setol-Singh, Military-Class Student.*)

Soroop Doss, an Oorya by caste, æt. 30, came to the College on the 26th April, for relief of retention of urine from which he was suffering for two days. He said that for some months before, he could not make water well. At first I had recourse to catheter, which being passed, touched the stone, and thus a noise was heard ; the stone was then found to be situated at the root of the penis.

I then bent a probe and introduced it, and brought the stone as far as the glans penis, while it was in this situation the stone appeared to me to be too large to pass out. I therefore made an incision outside into the urethra, and with a pair of forceps got out the stone,and the patient then made water freely. On the second day, I saw the part where I operated much swollen up, cold lotion was applied and afterwards the inflammation was subdued. Dressing was applied and it was continued for ten days. On the 11th day the wound was found to be closed by adhesion, and the patient made water without any pain. He was then said to be cured.

LITHOTOMY—ENCYSTED CALCULUS, RECOVERY.

(*By A. K. Lindesay, Esq.*)‡

Subhán Ali, aged 11, emaciated, anxious look. Has suffered most acutely from symptoms of stone in the bladder for more than seven years.

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* It seems probable that the obstruction to the passage of the urine originated in, and was occasioned by the impacted position of this small calculus between the enlarged third lobe of the prostate, and the parietes of the bladder, from which position it was probably removed during the attempts to introduce the catheter, which view of the matter, satisfactorily accounts for the urine passing by the natural passage so soon after the operation of puncture, as well as for the absence of any infiltration.

† The alleged risk of extravasation of urine into the cellular tissue at the base of the pelvis from the want of *close contact* of the bladder to the symphysis is thus no longer undeniable.

‡ Trans. Med. Phys. Soc. Cal.

The man was bleeding profusely from a large wound at the back part of the limb, extending right across the popliteal space, from one side to the other, and showing the two heads of the gastrocnemius bared—the inner one being raised by the protrusion of the tibia, which was splintered sharply off just below the articulation of the knee, and projected two or thee inches from the wound. There was also another wound communicating with the bones, upon the anterior aspect of the limb, just below the tuberosity. The hemorrhage was proceeding however from the large wound in the ham, and was from its dark colour, and continuous flow, evidently venous—it was not issuing in jets—and was easily suppressed by the tourniquet, which was applied by my colleague Dr. Spry, before I saw the patient.

We had neither of us any doubt as to the source of the hemorrhage being the popliteal vessels, for they could hardly escape being wounded in the protrusion of the tibia, which was splintered by a sharp but not pointed fracture, being nearly the whole posterior breadth of the bone.

It was quite clear that the limb could not be saved, and also that amputation should not be delayed, since the limb would inevitably mortify if we kept on the tourniquet, and any other mode of suppressing the flow of blood was inadmissible. I could not amputate through the condyles of the tibia, because there was no integument left posteriorly, only a little remained at either side of the limb, preventing the two wounds before mentioned, from completely encircling the leg.

I proposed therefore to amputate above the knee, by the double flap, to do it immediately—for nearly an hour had elapsed since the accident. The man's mind had recovered from the first alarm—his pulse was pretty good, and his only fears were for his life. I told him that without losing the limb his life could not be saved. He instantly consented—and a board being placed across the end of his charpoy (or bed) I commenced the operation.

Having fixed the tourniquet as high as I could, Dr. Spry was so kind as to take charge of the limb, any unskilful movement of it being attended with acute suffering to the patient. An assistant had charge of the tourniquet. With a long catlin I transfixed the thigh on the outside at the junction of its middle and lower third. I then entered the same wound on the inside of the bone and cut out the inner flap. A considerable gush of blood from the great vessels followed this second cut : this I stopped by seizing them with my left hand, for the tourniquet had no effect upon them. Finding however that I could not finish in this way, with my left hand engaged by the vessels, I laid down the knife, took hold of the Assistant's thumb, laid it down firmly on the artery as it passes over the pubis. The bleeding stopped instantly. I let go the vessels ; cleared the bone and divided it with the saw ; no retractor was necessary ; the flaps being simply held aside. The artery had a singular appearance, which at the time I could not account for. Instead of presenting its usual open-mouthed aspect, it looked like a round absorbent gland. Being sliced obliquely instead of being divided by a direct cut across, its longer lip had curled up producing this unusual appearance. It was secured by Dr. Spry with a single thread. No other vessel was tied—no other arterial vessel could be seen—the bleeding from the veins was very free. After waiting a short time, I thought it better to suppress this by bringing the flaps together with two or three straps across, and one broad circular, this sufficed to suppress the bleeding.

The poor fellow was very much reduced—skin cold and wet—pulse irregular and feeble. He had an ounce of port wine every hour in hot sago, to three doses, when he vomited, and the pulse rose and the skin became warmer. Still he seemed inclined to wander and was more oppressed than I could well account for, as he was a remarkably fine athletic figure for a native.

I now observed that there was a prominence in the region of the urinary bladder indicating distention, which further examination made fully evident. The man could make no effort to relieve himself. This paralysis had been occasioned perhaps by the injury, but more likely to have been the direct result of some hurt to the spine ; nothing was apparent externally however to indicate such injury.

It was impossible to introduce a catheter through the natural entrance to the urethra, or rather entrances for there were two, the largest would hardly admit a small probe. I found however that they united in one common canal some little way down, I therefore laid them into one and found as I expected the canal below of the natural size. Strange to say, the poor fellow made far more resistance to this little operation than he had done to the more serious one. I may as well mention here, that there was some unusual disposition of the canal below the symphysis pubis, which rendered the introduction of the catheter so difficult, that neither of our apothecaries could effect it, and for the three following days, and nights also, I was obliged to attend. This accident disappeared after a purge.

On July the 10th, I removed the centre strap and found adhesive action proceeding favorably. The discharge of serum was so very copious that I was once sent for, as it was mistaken for hœmorrhage. I did not disturb the stump however since I found the dressings were not stained red.

On the 6th day, or the 13th July, I found the greater part of the wound adhering, but a prolapse of the sartorius-muscle in the inner angle, the ligature I fancy came away, but I could never find it.* I did not examine the dressings for it.

I dressed the stump with adhesive straps and roller every third day and on the 31st of the month it was all healed but one little spot in the inner angle about the size of a rupee, where the muscle had protruded through by one of the straps of the first dressing slipping away.

Examination of the Limb.

I examined the leg within two hours after its removal. A long incision through the anterior interosseous space, not interfering with the original wound, extending from tuberosity to the ancle, shewed the ant. tibial artery untouched, but the ant. tibial nerve had been torn across presenting a ragged lacerated appearance. The interosseous ligament was torn across and the muscular interstices injected with blood. I then examined the posterior part of the limb, making a deep incision through the heads of the gastrocnemius and through the soleus to expose the vessels. I found the sharp point of the fractured fibula, resting in the angle of division of the popliteal artery into the ant. and posterior tibial. Its cellular coat wounded but the artery unopened. *The popliteal vein had received*

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* Came away three months after, through a little fistulous opening, which then healed up.

a lacerated wound, through which the blood had been furnished. Very considerable injection of blood had taken place also among the muscles.

Observation.

The result of the examination was satisfactory in proving the impossibility of saving the limb. I am fully satisfied that it is far better in amputation of the thigh to dispense with the tourniquet altogether, and trust to compression at the groin. In this instance, of a fine fleshy muscular limb in perfect health, it appeared to me, that the division of the lower attachment of the extensor muscles, had altered the compression of the instrument; that is, their retraction had shifted it off the artery, for there was no bleeding from the outer flap, though a full gush from the inner being cut out. Both Dr. Spry who so kindly and ably assisted me, and myself, were satisfied of the efficient action of the instrument before the incisions were made, and the cessation of the flow of blood from the ham, and of the pulse at the inner ancle, sufficiently prove it.

PUS OF HEPATIC ABSCESS CARRIED OFF BY URINE.*

(*By Dr. Mouat, H. M. 16th Lancers.*)

Corporal James Ward, ætat. 26. In India one year.

Admitted on the 29th September, 1831, with a severe attack of hepatitis, attended with giddiness, fever, and slight cough. Pulse full and frequent; tongue white; bowels loose, and stools mixed with slime and blood. Though actively treated and copiously bled, yet twenty-seven days after admission his right side was observed enlarged, and this continued to increase gradually till the 23rd November, or fifty-seven days after admission, and whilst waiting anxiously for the abscess to point, it was observed that he passed matter by stool—and on the 8th December, large quantities by urine, so that by the 22nd January, 1832, the swelling had quite subsided. He however, remained in hospital many months, and though his general health was good, yet his side occasionally became painful and enlarged, which was always relieved by his passing matter either by stool or urine. The whole side at times appearing enlarged with evident fluctuation, yet as it did not appear to point, it was deemed uncertain and hazardous to operate. He remained much in the same state till December, 1832, when he was invalided and sent to Púnámállí, and ultimately to England. Late accounts report his perfect recovery.

In this case the cure was effected by the efforts of the constitution, and the passing the abscess by stool and urine, but principally by the latter secretion. There were no indications that the abscess had burst into the intestines; and its gradual removal, and that also by urine, would discountenance the supposition.

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* See page 109, DISEASES OF LIVER.

Private Joseph Gibson, ætat. 23. In India two and a half years.

Admitted on the 5th April, 1832, with a violent attack of hepatitis, attended with sharp pain in epigastrium, extending to the right side and shoulder, with short dry cough and febrile symptoms, &c. Was largely bled and actively treated; yet on the twentieth day after his admission, he spat up by coughing large quantities of purulent matter, tinged with bile, and of a bitter taste, with great relief to the dyspnœa, pain, cough, &c. Ten days after this he passed matter by stool and also by urine, which for a time relieved the pain of his side. However, he became hectic, wasted rapidly, and died on the 14th May, about six weeks after admission.

On *dissection* two abscesses were found in the right lobe of the liver; one adhering to the diaphragm and communicating with the lung, but small and nearly healed; the other was large and without any communication with the intestines, biliary ducts, or kidneys, notwithstanding the most minute examination.

Here were extraordinary efforts made by the powers of the system. That by the lungs had nearly succeeded, but the constitution sunk ere the second abscess could be removed by the stools and urine.

Private Robert Mallalew, ætat. 28. In India four years.

Of a healthy appearance. Admitted on the 29th June, 1833, with symptoms of acute dysentery, complicated with acute pain at epigastrium, much increased on pressure;—though the severity of the bowel disease was considerably relieved by active treatment, yet he continued to suffer from the pain at epigastrium till the 7th July, when it extended to the right side, attended with fever, slight dry cough, quick pulse, thirst, &c. This continued unabated, though copiously bled and actively treated, till the 23rd August, or fifty-six days after admission, when pus was observed in his stools, and the following day more largely in the urine, with some relief to his suffering. From this period up to the 6th September he continued to pass matter copiously both by urine and stool, but without experiencing permanent relief to his side or producing ptyalism, though calomel and blue pill were freely and largely used. On the 7th September the pain much increased, attended with dyspnœa, cold perspiration, restlessness, &c., and he died the following day.

Dissection.—Discovered a large abscess in the right lobe of the liver, containing about thirteen ounces of well-digested pus; the left lobe appeared sound, the gall-bladder thickened and contained a mixture of pus and bile. No connection could be traced either with the biliary ducts, kidneys, or intestines.

At first the discharge of pus gave great relief, and though he ultimately fell a sacrifice to constitutional disturbance, still it shows the extraordinary exertions nature made to get rid of the irritating cause, and its importance by its temporary alleviation of the symptoms.*

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* From Trans. of Med. and Phys. Soc. Calcutta.

LITHOTOMY CASES.

(*By P. F. H. Baddeley, Esq., Asst. Surgeon, Shah Soojah's Force while in Kandahar.**)

LITHOTOMY, ADHESION OF STONE TO THE BLADDER. No. 183.

No. 2 was removed from an *Affghan* of 60 or 70 years of age who died two months after the operation, in consequence of a wound that had been made in the rectum. He appeared to have laboured under the disease, six or seven years, and this excepted, generally had good health. The operation took place on the 7th of April, and considerable force had to be resorted to, to effect its removal, for it was found firmly attached, in several parts, to the coats of the bladder; no inflammation supervened. The stone was found to weigh two ounces, and six and a half drams, it has an orbicular appearance and is apparently, of the mulberry kind.

CALCULI REMOVED FROM THE PERINEUM.

No. 4 were removed from an Affghan, aged about 50, and in good health. Fifty calculi of various sizes, from that of an almond shell, to a small pea, were extracted from two cysts in perineo. They must have ulcerated their way from the bladder, as a free communication existed between two localities, and the urethra; the small calculi were found embedded in the larger, and so firmly adherent were they found to their respective sacs, that much difficulty was experienced in removing them. A staff could only be introduced as far as the calculi, and the latter could be distinctly felt with the fingers, externally. An artery, occupying the situation of the transversalis-perinei, had to be secured during the operation. He was discharged cured, in a few weeks. Several years previous to this, he had been operated on, for the same affliction, by a native *Hakeem* of the city, but, save the simple assertion, nothing more could be elicited.

LITHOTOMY—ADHESION OF STONE TO THE BLADDER. *See* No. 183.

No. 6 proved a particularly difficult, and an affecting case. The subject of the operation was a poor little Affghan boy, of four years of age, who uniformly had good health, though he had laboured under the disease for about three years. On opening the bladder, the stone proved very large, and was found adherent to the inner surface of that viscus, several ineffectual attempts were made to bring it away in this state, and in doing so, Dr. Baddeley succeeded in breaking it by means of a pair of bullet forceps, the calculus was them removed in fragments, but, the boy proved so unruly, that even this was not accomplished without much difficulty, and considerable lapse of time. He lost a very small quantity of blood, and, in the midst of the operation, a *prolapsus ani*, to the extent of some six inches, took place, which was readily reduced at the conclusion of it.

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* "Memoranda of miscellaneous surgical operations, and morbid preparations, and of a few specimens of natural history by M. Healy, subordinate medical department."
These memoranda are exceedingly interesting indeed, and highly creditable to the professional talent of Mr. Healy.

PRACTICAL OBSERVATIONS

UPON THE KIDNEY AND URINARY ORGANS.

URINE.

I have already alluded to the most practical consideration connected with the urinary organs in this country, namely *diseased secretion*,* and as this is commonly the starting point of all other morbid changes in them, it merits our attention first. It is well known, that the acrid depraved quality of urine, often leads to ulceration, to calculous deposits, &c. Whilst it is only necessary to mention that most fearful, most frequent, and most fatal of Indian maladies, the cholera, to illustrate the sad consequences of suppressing this secretion, and show how the blood becomes poisoned when the urine suddenly ceases, as it generally does at its very outset, producing typhoid symptoms, coma, and death. "In the blood of a woman who died with all the signs of cholera, M. J. T. Simon found a very large quantity of urea, sufficient to obtain crystals of pure urea in very long quadrilateral prisms, visible even to the naked eye. The same blood contained a large quantity of biliverdine and biline, so that its taste was very bitter (Muller's Archiv.)" Now any excess of this urea may be deposited at any time, and in any place, in combination or not; as chalkstones in "gout," or as calculi in "stone." Again Dr. Robert Willis tells us that urea is found in the fluid effused after scarlatina : the dropsy is explained by the blood being drained of its albumen, (or fibrine) for it becomes so diluted as to permeate the vessels and infiltrate the cellular tissue.† M. Becquerel, after describing the altered conditions of the kidney in scarlatina, and the mode in which itself also becomes anasarcous, says "the albumen in the urine seems to be furnished by the serosity pervading *the renal tissue*," which transudes into the excretory ducts.‡ Besides which there can be little doubt that the presence of ammonia, when this secretion is retained, has a considerable influence in converting this fibrine or albumen into mucus, preventing the repair of tissues (by destroying the fibrine) giving a fatal character to ulceration wherever situated.

In congestive typhoid fevers, for instance, there seems to be an unnatural solution of the red particles (Williams.) The very odour of the patient seems to indicate ammonia escaping. The solution of the blood may become so complete, that every leech-bite, even if it have been long healed up will break out and bleed afresh, and nothing will stop this but a new supply of healthy fibrine to the blood. In one young officer whom I sent upon the river this year, as a last resource, the very first night of a fresh atmosphere and fresh sea breezes, stopped all this desperate oozing, and snatched him from the very jaws of death. His expression was very remarkable. "As I lay on the deck, I gasped at the fresh air as a drowning man. I threw abroad my hands and clutched at it for very life." His blood (the carriers of oxygen,) had long been deprived of vital air. He was right in what he said, it was in truth his utmost need, "his want of breath.§" The dreamy prelude of coma, had already began ; the dilated pupil, the wandering mind, the lethargic movement, the purple congestion of neck and face, when laid on his back, with the death-like pallor and instant faintness when raised up, the blood thus ebbing or flowing in its vessels obedient only to the law of gravitation, uninfluenced by the vitality of its own vessels, all testified his desperate condition.

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* Page 207 of this work.

† Forbes. Brit For. Med. Rev. xiii. p. 263.

‡ British For. Med. Rev. vol. xvi. p. 339.

§ See experiments by Dr. Reid and Dr. A. W. Volkmann (Brit. and Foreign Med. Rev. Jan. 1842, p. 224,) upon the exciting cause of respiratory movements. Dr.

Again albuminous urine is found in pneumonia, pertussis, diabetes insipidus, icterus, chronic bronchitis, diseased heart and rheumatism.* A single glance at the microscopic examination of this fluid by M. Donné, will demonstrate the vast number of organised matters which are got rid of by the urine in health, and of course are retained in disease, especially in fevers, in some of which such retention effectually prevents restoration. He says—"Passing over the inorganic constituents of the urine, we may briefly enumerate the organised sediments which are not unfrequently found present in this fluid. 1. White filaments, which consist of mucous globules, epithelial scales, and occasionally also of spermatic animalcules ; these substances usually come from the canals of the prostate gland. The cloud, that is often to be seen in healthy urine, is also composed of epithelial scales and of mucous matter. 2. The mucous deposit properly so called ; it has a greyish semi-transparent appearance, and contains globules of mucus held together by a stringy matter, and also scales of epithelium. 3. Purulent matter ; this is usually seen in a circumscribed layer of a dull opaque whitish aspect. 4. Blood, recognisable by its peculiar globules, which are soluble in acetic acid and in ammonia, but are insoluble in nitric acid. 5. Spermatic fluid : this is always present, in greater or less quantities, in urine voided immediately after a seminal emission. 6. A peculiar fatty matter, which separates on the cooling of the urine ; it communicates a whitish troubled appearance to the urine, which however becomes transparent on the addition of ether. The pathognomonic value of this phenomenon has not hitherto been accurately determined. 7. Chylous urine : this always contains a certain quantity of blood which settles down to the bottom of the vessel, while its surface is covered with a pellicle of a creamy-looking matter. This peculiar state of the urine is of frequent occurrence in some tropical countries. The serum of the blood too, in such cases, has usually a milky appearance."

But we must return to the more special pathology of the organs before us, although I cannot admit this to be a digression, nor lend myself to any exclusive process of *systematizing*, which looking at the mere details, loses sight of the whole bearing of the subject ; and never distinguishes the most obvious curative indications, which form after all the true practical end of the subject. *Now fever does often terminate by unusual deposits in the urine, especially pus.* We have positive proof, by the microscope that the urine does

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Volkmann says—

"The respiratory motion finds its impulse in the need of respiration, and this need arises from certain relations of nutrition, not of particular parts, but of the whole body. All parts receive oxygen from the blood, for the carbonic acid which they give to it ; and as soon as the blood surcharged with carbonic acid cannot satisfy this need, an unnatural state of the part ensues which may be regarded as the organ's *want of breath.*" (Athemnoth.)

The reviewer remarks "In these memoirs Dr. Reid adduces numerous experiments to show that the *besoin de respirer* continues after section of the pneumo-gastric nerves, and shows the insufficiency of the statements of Brachet on this subject. Dr. Reid also proved that the respiratory movements continued after removal of the cerebrum and cerebellum, and insists that the inferences from these experiments are subversive of the doctrines entertained by Dr. Marshall Hall on this subject."

* Forbes Journ. Brit. For. Med. Rev. p. 263, Dr. Willis, Dr. Williamson.

occasionally contain pus.* We have proof of large abscesses disappearing from the liver, simultaneously with the appearance of large purulent deposits in the urine. In Dr. Mouat's cases (which I have given p. 238 ;) we do not find the urinary organs ulcerated to furnish the pus, and we fairly enough conclude that it has been *translated* from the depôts in which it was formed and thus eliminated from the system. These cases of Dr. Mouat's are not only valuable therefore as demonstrating a fact of deep interest to Medical Pathology (the elimination of pus by the urine)—they teach us also, the defects of our own practice in omitting observation upon the urine. To this source are we indebted for a fact, so consolatory in hepatic disease being brought to our notice. But why should our clinical reports be so miserably defective? why should the stools *alone* be so curiously scrutinized for indications of disease. We find that the fathers of our profession in modern Europe, could actually presage the termination of fevers by observation upon the urine alone, of this kind are the observations cited by Bartholini,† respecting the pestilential fever of 1574, whilst nothing can be more graphic or natural than the clinical reports of Hippocrates himself, which are to this day admirable models for imitation.‡ If they could prognosticate the issue of disease from this sign it is more than the moderns can do, and the very practice of observing all the secretions, is the only one at once philosophical and safe. It is never attempted however with us, excepting in urinary diseases perhaps, and I do not recollect that my own observations, or those of others which I have given in this work, form any exception to this great imperfection in clinical reports.*

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* See Dr. Golding Bird's observations on the true pus particle. Brit. For. Med. Rev. vol. xvi. p. 321, M. L. Heritier as quoted in p. 440 vol. xxxiv. of Brit. and For. Med. Rev. in which we find the following case. " A woman named Delage, enrolled among the number of the poor in my division, sent for me on the 18th of September last ; she complained of acute pain caused by a tumour which had formed during the last three days below the scapula about an inch from its inferior angle. The examination of this tumour immediately convinced me that it was formed by a purulent collection. Indeed a small puncture was followed by an abundant flow of laudable pus ; I closed the incision with adhesive plaster, and ordered emollient applications. Two days afterwards a fresh accumulation of pus had taken place in the sac, and as I was preparing again to empty it by puncture, the patient, aged 86 years, entreated me not to use the instrument upon her again. The great age of the woman induced me to pay attention to her request ; and I consented to exchange my lancet for caustic potash. I caused a piece the size of a pea to be applied to the tumour ; twelve hours after, the tumour had completely disappeared ; not because it had been opened by the caustic, not that it had emptied itself by the small incision I first made, and which had closed ; but truly by absorption. During the night, fever had occurred, *the urine showed itself turbid and sedimentous ;* I analysed it, and *found a matter to which it was easy for me to attach all the characters of pus.*" (p. 489.)

† Thom Bartholini, Cent. iii. *Hist.* lxxxv. p. 103, says of an appearance " *suspensum urinæ annulare,*" in a case of malignant petechial fever certainly a very grave one " ne fevellit augurium brevi enim restitutus est."

‡ In fevers, it is interesting to contrast THE CLINICAL REPORTS OF HIPPOCRATES with those of our time for instance, (p. 1102) in his Lib. iii. *de morb. vulg.* Sect. vii. *Æger sextus* and *decimus* we have a fine specimen of the laconic style of clinical reports, in which the chief indications are taken from the urine.

HIPPOCRATES ON URINE IN FEVER.

Æger sextus.

" Abderæ Periclem febris acuta, continua, cum dolore prehendit, sitis multa, æstuatio et stomachi fastidium aderat, potu continere non valebat. Aliquantulum autem, tum ex liene tum ex capitis gravitate laborabat. Primo die sanguis multus ex nare sinistra profluxit. Febris tamen intensior erat, urinas reddidit multas, turbulentas, albas, quæ nec depositæ subsidebant. Postridie graviora evaserunt omnia. Ac certe urinæ quidem crassæ erant, verum quæ magis subsiderent, stomachi fastidium et æstuatio allevata est, dormiuit. Tertio die febris remissa est, urinæ copiosæ, concoctæ, in quibus multum subsidebat, profluxerunt, noctem quietam habuit. Quarto sub meridiem sudor multus, calidus toto corpore dimanauit, a febre judicatione est absolutus, nec recidiua, passus est. Morbus erat acutus.

CALCULOUS DIATHESIS.

Both the *forward* relation of the urine to the *solids* and the *backward* relation of the urine to the blood, to use the plain English phraseology of Dr. Williams† are alike important. Of this last, or its effects upon the blood

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Æger decimus.

" Abderæ Nicodemus ex venere et potu febre correptus est. Per initia autem stomachi fastidio et oris ventriculi dolore cum siti conflictabatur. Lingua exusta est, *urinæ tenues ac nigræ.* Postridie febris invasit cum horroris sensu et stomachi fastidio, nihil dormiuit, biliosa, flava, vomitione sunt refusa, *urinæ eædem* perseverabant, noctem quietam transegit, somnum cepit. III° Imminuta sunt omnia et tranquillitas adfuit. Sub solis occasum rursus corporis implaciditate aliquantulum tentatus est, noctem permoleste tulit. IV° Rigor cepit, febris mågna, omnium dolores aderant, *urinæ tenues erant, ac suspensum quiddam in medio innatans* habebant, multum deliravit. VI° Alevatio fuit. VIII° Cetera remiserunt omnia. X° Sequentibusque diebus dolores quidem tenuerunt verum leviores erant. Accessiones vero et dolores hunc perpetuo diebus fere paribus invaserunt. XX° Urinam reddidit albam, cui crassitudo inerat, nec deposita subsidebat, copioso sudore profuso visus a febre liber esse. Sub vesperam autem rursus incaluit, iidemqne;dolores vexarunt,hòrror adfuit,sitis, non nihil deliravit. XXIV, *Copiosam urinam albam reddidit,* in qua multa subsidebant. Sudore calido copioso per totum corpus diffuso, a febre ivdicatione est absolutus."

Again in Lib. VII de Morb. Vulg, sect VII p. 1239 we have another fever case as follows: " Philistidem Heraclidæ conjugem febris acuta invasit, faciei rubor nulla ex evidente causa. Paulo vero post procedente die, rigore correpta, cum no nrecalesceret, convulsio in magnum digitis et pedum oborta est, paulumque postea incaluit. *Urinas reddidit compacta quædam innatantia, nebulosa, divulsa habentes,* per noctem dormiuit. II° die insuper riguit, per diem paulo magis incaluit, et rubor minor erat, et convulsiones moderatiores succedebant, *urinæ eædem,* noctem dormiuit, parum pervigil fuit cum nulla ægre tolerabili molestia. III° die *urinas* coloratas magis reddidit, parum subsidentes, sub idem tempus subinde rigor prehendit, febris acuta, sudor per noctem toto corpore dimanauit. Sub vesperum autem diei color in regii morbi modum versus est, noctu dormiuit, et sudor toto corpore effluxit. IV° die sanguis ex nare sinistra probe effluxit, et menstrua pauca suo ordine comparuerunt. Rursus autem eodem tempore febricula ingravescebat, *urinæ paucæ, densata quædam innatantia habentes.* Aluus vero cum natura dura esset, multo tamen magis substitit, nihilque; ne si subdita glande demittebat, noctu dormiuit. V° die tum febricula mitior visa est, tum sub vesperum sudor toto corpore effusus est, et menstrua profluxerunt, noctuque dormiuit. VI°die *urinam confertam, multam, densata quædam innatantia, et paucam subsidentiam concolorem habentem reddidit.* Circa meridiem autem paulum insuper riguit, aliquantum incaluit, sudor toto corpore dimanauit, noctu dormiuit. VII° Parum recaluit, facile tulit, toto corpore sudavit, *urinæ probe coloratæ erant,* cuncta indicatione sunt absoluta." (Hippocratis Op. Om. fol. Francof. 1624.)

I have taken these as specimens, but *Æger tertius* is equally good. In these and many other cases given by Hippocrates we find *the secretion of urine* carefully observed and noted. In his celebrated APHORISMS there will be found a most prominent place assigned to indications of disease afforded by the urine. See Op. Cit. p. 1252, Aphorism, Lib. iii. Sect. iv. No. 68 to 82.

The most elaborate treatise however which has been handed down to us is that of ACTUARIUS, in his books

de differentiis urinarum.............. *de judiciis urinarum*.............. *de causis urinarum.* *de prævidentiis ex urinis.* He goes almost as far however as Dr. Hornbook, for he says, lib. de caus. urin., cap. viii. "*Illud quinetiam non erit auditu dictuve mirable ut a locis contentorum in urinis significentur quodammodo corporis affecta loca, &c.*

* Since these sheets were in the press I have had submitted for my opinion, a case in which purulent urine was the chief feature, followed by relief to pain in the side—I have no doubt by its derivation from an hepatic abscess.

† " Principles of medicine."

itself, enough perhaps has been said in this place. We now come to its forward effects or those produced upon the organs themselves.

Liebig says that from the first moment the functions of the lungs or the skin are disturbed, compounds rich in carbon appear in the urine, which acquires a brown colour. Again that by the addition of oxygen, uric acid becomes converted into urea and carbonic acid, he states that *the mulberry and urate of ammonia calculi occur always in sedentary persons from want of oxygen.* Again "concretions of uric acid have never yet been observed in carnivorous animals living in a wild state." The irritation of depraved urine then, on the one hand produces inflammation and ulceration of the organs, or on the other gives rise to calculi, the weight, size and situation of which, produce various morbid effects upon the organs and general health. It was thought at one time that calculus was a disease unknown in India, we have however in the museum of the College about 300 specimens, which have been collected from patients operated upon in every part of India. In the SURGICAL PATHOLOGY I shall enter fully into a consideration of them, having merely cited a few cases here, to illustrate the division which I am now commenting upon.

INFLAMMATION AND ITS EFFECTS.

We may therefore from depraved secretion, or the state of the system resulting from defective secretion and bad blood, have simply, inflammati.on or ulceration, or stone with both. In considering these preparations ndividually it is well to give a first place to the effects of inflammation. In No. 219, we have an elegant illustration in the small bladder of the kid, of the spread of inflammatory action from the spermatic cord to the urethra and bladder. The effusion of lymph upon the mucous membrane of the bladder has produced an universal efflorescence which has assumed a more distinct vegetative form upon the point where the vasa differentia enter the prostatic portion. The bladder too is as a whole very greatly hypertrophied, or thickened in all its coats, especially the muscular ; and this is an effect which always follows when muscular parts are called upon to increased frequency of exertion, as we have already seen in the heart.

The same thickening, the same efflorescence, is finely shewn in the female bladder No. 595, from gonorrhœal inflammation, propagated from the urethra. This in the male often spreads to the spermatic cords and testicles. In the female to the vagina, uterus or Fallopian tubes, even closing them, and then proving a cause of sterility. Or it may even be propagated to the peritoneum, (by continuity of membrane) and thus prove fatal. The congestive inflammation which occurs after injury to the spinal marrow is seen in No. 525, where the long continued maceration has not yet obliterated the deep bloody discoloration from it.

The chronic form of inflammation of the bladder is well shewn in No. 828, where marks of ulceration that has healed, are yet evident ; whilst one large abraded surface is still covered with flocculent albuminous exudation. The whole muscular structure is greatly hypertrophied. In No. 183, we see a large irregular ulceration through the mucous coat of the bladder, with copious effusion of lymph ; bridles of the original tissue remain, and from the size of the ulcer, that of a large egg, it is not improbable that this mischief was caused by the adhesion to it of a stone (*see* case 183.)* The horrible mischief which calculus occasionally produces, is seen in

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* CASES p. 240.

No. 268, where the calculus broken by the fractor, still remains at the neck of the bladder ; the interior of the viscus being completely covered by thick albuminous exudation, which still retains one portion of the stone suspended, even at the very summit of the bladder.

Dr. Green's first case is very valuable, shewing in a striking manner the symptoms which attend inflammatory irritation of the kidneys and bladder, following upon a scirrous prostate impeding the passage of urine. The extensive sympathies of the urinary organs, with the stomach, head, testicles, &c., are graphically detailed and the whole history of the case is perfect. We find recorded on the 7th, the aggravation in suffering induced by the introduction of a catheter. In the case which I have given the same effects followed (p. 223.) At the close of this disease, as well in this as the next case, the lower portion of the small, and also the large intestines are shewn to have become affected with dysenteric congestion and inflammation. This in a third case (see No. 223,) has proceeded almost to perforation of the canal.* The second case No. 222, shews the difficulty of diagnosis in the

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* I find that I have been anticipated in this and many other of my observations nearly 1,700 years ago, by Rufus. The excellent Ætius (Amideni) has preserved this fragment "De inflammatione vesicæ" which will be found next page. In italics I have marked the more extraordinary passages both in his pathology and practice, which demonstrate, that in the 19th century even, we have little advance to boast of. The hint for applying fomentations in ox bladders is worth knowing.

De Inflammatione Vesicæ Rufi *Cap.* xxvi. *Serm.* xi.

"Morborum qui circa vesicam oboriuntur gravissimus et maxime mortalis inflammatio existit. Consequuntur autem ægros communia inflammationis signa. Febri acuta infestantur, et vigilant, et delirantes aliena loquuntur, et vomunt biliosa pura, et lotium ejicere non possunt : *durus fit pecten et pubes* cum vehementi dolore, et egerendi appetentiœ velut in tenesmo fieri solent : quod vero egeritur tenue est, et subsidentiam non habet aliquando et inflationes sequuntur *et aluus adstricta est*, intestino recto ab inflammatione vesicæ compresso. His itaque si nihil aliud prohibeat *venam citra* cunctationem in principio morbi *secato*, et pauco cibo adservato, et aquæ potu, locos vero oleo in quo anethum, semen lini, aliquando etiam ruta et althea incocta sint irrigato. In decoctum item seminis lini et fœni græci insidere facito, odorato aliquo semine, veluti petroselino, dauco, aniso, simul incocto. Admoneaturque æger quo in aqua decocti desidens mingat · *vesica enim non satis robusta est ad amplectendam et expellendam urinam. igitur ipsum* ægrum aut aliquem ex adstantibus scite ac placide *pectinem premere oportet*, neque id ultra modum ne dolor inde intendatur. Est autem inuentum hoc Philumeni, qui hominem hoc modo ā se tractatum urinam ejecisse testatur. Cæterum primum omnium aluus leni infuso subluatur, et post stercorum eductionem, oleum quo supra ad irrigationem usus es, in intestinum solatii et leniendi doloris gratio inijciatur. Præstat autem *et papaueris calicem simul cum oleo incoquere*, et adipem anserinum aut gallinaceum recentem in ipso oleo eliquatum simul infundere. Ego vero, inquit Rufus, vehementioribus existentibus doloribus *opium* magnitudine erui cum modica myrrha et croco lanæ illitum, in podicem indidi, et statim dolores quieverunt, confestimque æger obdormiit. Post clysterem et infusa, insessusque et irrigationes, etiam *cataplasmatis utendum ex cruda ordeacea farina, capitibus papaueris, et hyoscyami foliis*, ac modico mandragoræ succo adjectis. *Fomenta autem fiant per aquam et oleum in vesicis bubulis semiplenis* admota : aut farinam calidam in sacculis aut detritæ vestis panniculis ligato, et pro fotu admoveto. Post cataplasmata, etiam cerata imponantur ex hyssopo, et cera, et sicyonio aut gleucino oleo cum castorio apparata. Quod si neque sic mali tumultus cesset, *cucurbitam affigemus locis unum cum scarificatione*, Ceterum ubi evidens declinatio apparuerit, ad emplastra et malagmata transeundum est. *Porrò catheteris immissionem ad inflammatam vesicam in viro quidem non probo* : etenim quam laboriose immitti queat, *dolores exacuit et inflammationem* auget. Verum mulieri ipsum adhibere nihil absurdum : brevis enim in ipsis urinæ meatus existit, et recta situs, ut citra dolorem hoc molimen admittant. Si vero urinæ suppressæ piculum urgeat, necessario ad catheteris usum confugimus, non quod affectionis molestiam tollat, sed ut urgentem urinæ suppressionem corrigat, et a præcipiti periculo liberet. Post urinæ prolectationem usus ad eadem mitigativa auxilia accedendum, usque quo inflammatio solvatur, aut sup-

early stage of disease of the kidney. Here again it is probable that the patient's distress was greatly aggravated by the urine gaining entrance into the scrofulous abscess of the prostate. The case No. 791, which follows of calculi in the kidneys and bladder, very remarkably illustrates the difficulty of diagnosis. The man made no complaint on shipboard and did his duty on the voyage out; when admitted all his "acute pain" "was most severe in the region of the epigastrium" with constant sickness, and *costive bowels.* It points out to us plainly nature's method of preventing the mischief of effusion into the abdomen,—this is done by rendering the bowels wholly inactive whilst adhesion is going on, (see case recorded at p. 67.) This may teach us that it is not always wise to force these obstructions; in my case it did mischief, and we find alarming symptoms greatly increased in this case, after the introduction of two feet of injection tube. There had been no feculent stools in this case for seven days; in the case I have recorded the man lived nearly seventeen days with bowels thus locked up. It is probable that the stone found in the bladder, had only lately arrived there,—and it manifests the wonderful efforts of nature to remove this disease. It is the largest stone I ever read of passing through the ureter.* It is clear from the bed of it, left in the kidney, and from the small white deposit, it got in the bladder, not exceeding an eggshell in thickness, that this irregular mass had traversed the whole length of the ureter which has become enormously hypertrophied to pass it safely, which it appears to have *almost effected.*

LOCATION OF CALCULI, METHODS APPLICABLE FOR THEIR REMOVAL.

These preparations give some other interesting facts connected with calculus which may here be considered. We see calculi in the case now under consideration No. 791, impacted in the kidney, and although they are said to have been met with in the blood vessels, and even to have been vomited from the stomach, it is probable that they could only have attained such situations by ulceration from the kidney. It is wonderful indeed that calculi of any size should attain the bladder at all, and perhaps even more so that they ever should get out of the bladder and be discharged by the urethra; but this process is all well seen in No. 791. One large calculus remains in the kidney, another has left the opposite kidney and is still seen sticking in the bladder, partly white as the one in the kidney, which is very like white sugar, partly

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puretur. Solet autem sæpe repente inflammatio solui, erysipelate juxta cutis superficiem oborto, et per manente, neque rursus intro recurrente imo et lotio multo ejecto sæpe eadem judicatione liberum hominem reliquit, nihilo minus tamen et si hæc apperant, iisdem remediis insistere oportet quandoquidem ut plurimum tensione perfecta oborta, continuem exacerbationes fiunt, et mali constitutio diuturna. At vero ubi periculosæ accessiones cessarint, et morbi constitutio jam fuerit inveterata, ad unguenta quæ humores ex profundo evocant ac transferunt, metasyncritica græci appellant, et ad malagmata transcundum est, quem cutem rubefacere possunt." ÆTII AMIDENI *Med. Clar.* Jo. *Baptista Montano Lat. fact. Clement.* VII *Pont. Max.* VENETI *decrit.* 1533.

* In shape and size, it is very like one figured by Bartholinus. Cent. III. Hist 34, as having been found in the *renal veins,* "in venis emulgentibus reperti sunt duo calculi unus utrinque." The reason given by the parents of the boy for their desire to have the body examined is illustrative of the times (1645) two centuries ago, *incantamento* dubitantis. The next history of Bartholinus (Hist. 35) is much more like this case. It is probable that the stone found in the veins, and that which Tulpius has so beautifully figured and described under the title "*calculus arteriæ aortæ*" had merely attained these localities in an attempt to escape down the ureters, *see* Tulpius cap. XXV. LIB. II.

covered with brown concretion which it has got in the bladder, or rather it would appear that the brown is the oldest, in which case there would have been at the same time a brown calculus in one kidney and a white one in the other. It is worthy of remark that in the kidney from which the calculus escaped, there is nothing but the fibrous coat, (tunica propria) apparently, greatly thickened, that has prevented its escape into the abdomen. The history of this case seems to shew that it had very nearly found its way, at one time into the intestinal canal. The dreadful effects of *bad position* is shewn by the mortification and death which resulted in the preparation, No. 524, where a stone had all but escaped, but was arrested in the worst position, the urethra.

Impacted calculi, which were once thought to preclude the operation of lithotomy* are seen in the preparation No. 222, and in this instance seem to be the result of the urine lodging in *ulcerated loculi*, many of which are marked by coloured glass rods in No. 220 ; one is seen impacted in the prostate gland, and the extraordinary preparation No. 218, where the prostate has become dilated like a second bladder, has probably been occasioned either by a calculus or by calcareous matter lodged there.†

We have seen from the cases and preparations together, that calculi may be formed, or at all events may *be found*, in any part of the extent of the urinary organs : in the kidneys, one or both ;—in the ureters, in the bladder, between the coats of the bladder, in the prostate, in the urethra, in the prepuce. They may by the efforts of nature be thrown out from any of these situations. From the kidneys by abscesses and ulceration, in the loins.‡ From the ureters they may find their way into the bladder, or by ulceration into the bowels.[*] From the bladder, if small, they may find their way through the urethra in the male,[†] and even very large ones, (as large as a hen's egg) have been forced through the short straight urethra of women.[‡] In the prostate, calcareous matter and stones have made their way out by ulceration as in Dr. Baddeley's case. In the urethra at any part of its course this may take place, and is still more probable in the prepuce.

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* Mr. Lindesay's case is valuable shewing that the stone being encysted does not prevent success. Tulpius takes occasion to shew the limited application of lithotomy, in a remarkable case of multiple calculi, great numbers of which had been passed during life, others found after death in the kidneys and bladder ? of the latter some were impacted as in Mr. Lindesay's case. Tulpius observes—" Tres calculos, satis insignes qui vesicæ tunicis adeò fuère involuti, ut ne lyncei quidem oculis illos perspexisses nisi scalpellum involucra abstulisset cujus beneficio duos etiam calculos animadvertimus in renibus latitantes.

Ecquid egisses Lithotome in hisce syrtibus ? obvios forte calculos facile eduxisses, at qui eruisses tunicis inclusos ? vis signem tibi, quam deinceps sequaris, cynosuram ? quæ supra hominem, Deo committe, et consule non minus tuæ famæ, quam ægrorum saluti."

† Dr. Baddeley's case (No. 4) p. 240, was very likely of this nature.

‡ It has been thought that the spontaneous escape of renal calculi by ulceration through the loins has first given rise to the operations of *nephrotomy*. The first case I have met with and one of the best is given in RIVERIUS, reported by A. D. OZIA AIMAR of Grenoble, in this the ulcer healed except an occasional outbreak. It is as follows:

Abcessum lumborum ad renes penetrans.

Vir nobilis Gratianopolitanus tumorem in regione renis dextri passus est, qui in suppuratum abiit, eoque aperto magna serosæ materiæ quantitas effluxit. Post aliquot dies ex ulcere egressi sunt duo calculi amygdalæ magnitudinem æquantes, quod mihi admirationem peperit. Sed ulceris profunditatem ad vertens, quœ quatuor digitorum transversorum latitudinem æquabat : cum etiam consequenter alii calculi fabæ magnitudinem æquantes ex ulcere prodierint ; credere coactus sum eos calculos a rene etiam ulcereto procedere. Hujus rei fidem etiam faciebat, quod ex ulcere magna serosæ materiæ copia continuo effluebat. et lintea subjecta intra paucas horas madore inficiebat quasi in aquam demersa fuissent. Præterea pus interdum cum urina per penem effluebat. Jam a decennio casus iste contigit ; et ulcus in fistulam abiit, quæ sæpe occluditur per tres aut quatuor menses ; et cum denuo aperitur, sanguineam quandam materiam emittit, postea iterum sponte occluditur. Æger in eo statu satis comode vivit, et omnes actiones ordinarias libere exercet. Obs. ix. p. 687, RIVERII Op. Om.

Excepting in the ureters, they become accessible in all these situations to the knife of the surgeon, or to other mechanical adaptations for their removal. In the surgical division of this work, the ordinary methods will be considered, but a few words will not be irrelevant in this place upon others less known.

First of Nephrotomy. This has succeeded formerly in the hands of the Arabian, Italian and French surgeons. It is thus noticed in Freind's *History* of Physic, vol. ii. p. 182. " I have remarked before, how bold the *Greeks* were, much bolder indeed than the *Romans*, in performing the operations of *Surgery;* and how many they used actually to perform, which for the cruelty or difficulty of the undertaking have been laid aside, and disused by the moderns. But whoever will take a view of *Albucasis*, and compare him either with *Celsus* or *Paulus*, will think him much the hardier operator of all of them : the very reading the catalogue of his operations would be shocking to any one, who has not seen a good deal of this sort of Surgery. I cannot but wonder at one thing, that he should not so much as say one word of the method, which some of his own nation had ventured to attempt in a *stone* of the *kidney*, which was to extract it by cutting through the muscles of the back. It is plain from what *Serapion* and *Avicenna* say of it, that it was practised by some in those times ; though they both think the operation extremely hazardous, and most likely to end in death. And I just mention this to shew, that in those days there was scarcely any operation, how painful, difficult, or dangerous soever, but some Surgeons ventured to undertake it, and some patients to undergo it. And as to the case I have been speaking of, whatever has been said concerning the fatality of those wounds, which penetrate the *pelvis* of the *kidney*, we find it clearly contradicted by the late learned Mr. *Bernard*, in the case he gives us of Consul *Hobson*, who had a stone cut out of his kidney by the famous *Dominico Marchetti* at *Padua*, and lived many years after in perfect health. The case is very accurately described, and the reflections upon it worth perusing ; the same account informs us, that the *Arabians* mention indeed such an operation, but think it the attempt of a madman or a mountebank, and that *Rouset* was the *first* that ever seriously advised it. However besides the instance alleged, there is *one* more to be met with of this operation of *nephrotomy* being actually performed; and that is in *Mezeray's* History of *France*, where the fact is related thus. "The Doctors of the faculty of Physic at *Paris*, knowing "that an Archer of *Baynolet*, who had been very much afflicted with the "stone, lay under sentence of death, begged of the King that he might be "put into their hands to make an experiment, whether they could open the "*kidney*, and take out the stone. The operation succeeded so well, that "the man lived many years after in good health." This was done in the reign of *Charles* the Eighth, who died 1498; near 100 years before *Rouset* wrote, and when the *French* Surgery was but just in its dawn. *Tulpius* is of opinion, that the advice of *Rouset* was founded upon what has been sometimes observed of a stone's making an abscess in the *kidney*, and working its way out, as, in the case he describes, it did in the loins; and which indeed *Hippocrates* takes notice of. But it is as probable, he might have taken his notion from this matter of fact, which no doubt had made a noise in his own country; and which *Rouset* himself relates, though he tells the story (from the *Supplement* to *Monstrelet*) otherwise in one or two particulars. Though, these *two* instances (which perhaps are the only *two* upon record) will scarce recommend the practice; yet thus much at least may be concluded from them, that the operation, though dangerous, may possibly succeed, and is allowable at least in cases otherwise desperate, where the way is pointed out by an abscess. The arguments drawn from *analogy* by *Rouset* are worth perusing. We have reason to think, cutting for the stone in the *bladder*, was thought at first a very dangerous operation; so much, that *Asclepiades* and his sect exploded it as a pernicious practice; and *Hippocrates* would have this only, of all *chirurgical* operations, left to a particular set of men, who made it their profession. It is difficult to determine in all cases, what is impracticable in Surgery. Some attempts of this nature, which the ancients performed, have such an appearance of boldness in them, that I doubt we are too ready to think them incredible, merely because we do not see them undertaken in our days."

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[*] In the *Observationes Communicatæ* of Riverius there are two cases by Rufus very remarkable. Obs. iv. the passage *per anum* of numerous calculi. Obs. v. the passage by the mouth or " *de calculis in liene genitis et inde per vomitum rejectis* (Riverii *op. omnia* p. 670, fol. Francof. 1669.) It seems to have been written by the sufferer himself, who considered the spleen as the locality and the *vas breve* as the channel to the stomach, although the whole history points to the kidney, and is very curious.

[†] Calculi occasionally ulcerate their way out of the urethra, leaving however a fistula. *See* Bart. Hist. viii. Cent. iv. " Post gravissimos dolores è vesica pueri scanici quadrimi in scrotum calculus protrubebatur anno 1628 exinde verò suppuratione facta foris rejectus, remanente fistula per quam continue urina exudabat, &c."

[‡] A calculus as large as a hen's egg has been passed through the short straight urethra of a woman, so figured by Bartholinus Hist. lxxi. Cent. i. and another still larger of which a drawing is given in Tulpius Cap. vii. " calculus, trium uncearum sponte excretus." Lib. iii. p. 191, Edit. Lugdun. 1716.

In Forbes' Journal (Brit. and For. Review) for April 1843, we find the practice advocated by the greatest modern authority on diseases of the kidney.

"The operation of nephrotomy, notwithstanding its difficulty and the chances of failure, should according to M. Rayer, be practised. The indication for the operation will of course be stronger if there be extra-renal abscess or perforation of the sack formed by the distended pelvis. The author's motives for giving this advice are that, left to themselves pyelitic collections are almost invariably fatal, unless they open externally by spontaneous perforation; that the operation itself presents no immediate danger; no large vessels are exposed to the knife, there is no abundant hemorrhage, at least in the great majority of cases, to be feared, and no risk of opening either the peritoneum or intestine incurred. We must refer to the original work for most precise directions as to the method of fixing the situation for performing the incision, &c. The only real objection to the operation M. Rayer considers to be the difficulty of breaking down and extracting such calculi as may be contained in the pelvis, and this part of the operation may be deferred, as the immediate and essential point is gained, the evacuation of the fluid collection in the cavities of the kidney. M. Rayer refers to numerous cases of indubitable success on record, as forming the final justification of nephrotomy under the circumstances; but, as he himself admits, in some of these instances the operation performed did not in reality deserve this name, as the calculus had either already escaped spontaneously into an extra-renal abscess, or the surgeon had contented himself with incising the walls of an extra-renal abscess, leaving the perforation of the pyelitic sac and the escape of the renal calculus to be accomplished by a natural process.

"Such being the circumstances which, according to the learned author, warrant the operation, the absolute contra indications claim to be mentioned. These are the existence of renal calculi upon both sides, (unless, however, in the case of *extra-renal* abscess, which should always be opened;) the circumstances of the pus flowing freely from the pelvis into the ureter, without the existence of renal tumour or fair motive for apprehending rupture of the kidney, and above all of a good state of the general health justifying the notion that the unaffected kidney supplies by increased action the want of the diseased one; and finally the fact of the existence of severe organic disease either in other parts of the urinary organs or in other viscera."

To me the greatest difficulty has been the diagnosis. How can we positively affirm that the stone is in the kidney? That it is not already engaged in the ureter? All the other objections are easily disposed of compared with this, such as hemorrhage, injury to the secreting power, the angular straggling nature of the stone, there being more than one, &c. A case occurred last year among the Invalids, which I had reason to think one of renal calculus from the pain and fluctuation over the kidney, before I saw him, the muco-purulent urine, &c. After he came under my care, an abscess presented over the highest part of the crista-ilii, I opened it, it continued to discharge pus and urine till the man left. It was only after he had left, it occurred to me, that any doubts as to the exact situation and presence of stone, might have been readily solved *by an exploring needle thrust into the kidney, which striking against the calculus would indicate decidedly its position. This I would do in another suspected case, for it can do no harm.*

In its (stone) passage down the ureter no mechanical treatment could do any thing but evil. When arrived in the bladder, the simplest and safest plan with an usual sized stone is to cut it out. In the case I have given, no other evidence of the presence of stone existed than the occasional stoppage of urine. It may be broken, but my own observation is against the practice excepting in the case of very small stones. We see what mischief may follow in preparation No. 268. In the 15th century we find a method proposed of dilating the urethra in the male in order to transmit calculi of considerable size. Prosper Alpinus in his "*Medicina Egyptorum,*" says that it was practised by the Arabs in Egypt in his time.* He gives two methods, one probably had some gut stretched over the reed, *which dilated in the bladder*, and when inflated and drawn outwards, would do very well to dilate the urethra. The other is a succession of dilatable catheters.

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* METHOD PRACTISED IN EGYPT FOR EXTRACTING STONE.

"Eo tempore, quo ego in Ægypto moram faciebam, Arabs quidam Haly vocatus ad extrahendos lapides sine incisione celeberrimus erat, quem ego sane cuidam duci Turcarum, Horam Bei vocato, multos lapides extraxisse vidi. Quo in opere absolvendo ille ligneam cannulam accipiebat, longitudine octo digitorum, et latitudine digiti pollicis. Quam colis canali admovebat, fortiterque insufflabat, atque ne flatus ad interiora perveniret, altera manu extremum pudendi perstringebat, foramen deinde

It only remains to notice the facility which *puncture above the pubis* affords for evacuating the bladder, when distended with urine; whether caused by stone in the bladder (the neck) or stone in the urethra. In Dr. Brander's case of stone sticking in the neck of the viscus. He relieved the distended bladder by his ingenious plan of puncturing through the symphysis, and doubtless this would answer well (p. 233.) But I have found that puncture above the pubis is sufficient even in this hot country, to keep the bladder for months together from distention, by retaining in it an elastic catheter. So that even a badly injured urethra may by this means be treated surgically till it recover, without the irritation of urine passing over it. Its advantage over other forms of opening the bladder is well ascertained in the following table by M. Mondiere which contains the results of 92 cases.

	Puncture			
	perineal	recto-vesical	hypogastric	Total
Number of cases	9	28	55	92
Success	6	19	49	74
Fistula	1	3	0	4
Infiltration	0	3	0	3
Abscess	0	1	0	1
Hemorrhage	1	0	0	1
Death	1	2	6	9

We see the fatal consequences which resulted in one case, (p. 225) from a stone sticking *in the urethra*, and the ease with which it is remedied, when known in time (p. 233). I may add too that it is a very common accident with natives. *Calculi in the prepuce* are easily got rid of: these also occasionally produce distention of the bladder (p. 235). Again this evil is occasioned by the paralysis of a great nervous shock; a serious operation (p. 235) or even the disorder induced by hysteria may produce it.

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cannulæ claudebat, ut virgæ canalis intumesceret, et latior fieret, ac appareret. Quo facto minister digito in ano posito, lapidem paulatim ad canalem virgæ, atque in ejus extremum deducebat. Qui ubi præputio lapidem appropinquasse sentiebat, canulam *a* virgæ canali fortiter impetuque amovebat, ut magna dexteritate lapis ad nuclei olivæ magnitudinem fuerit extractus; et ego interfui huic duci Turcarum, et postea duobus item Judæis, quorum alter puer erat, cui octo lapillos extraxit lapidem ad magnæ olivæ magnitudinem. Hicque est extrahendi lapidem a vesica modus, que utebatur ille medicus Arabs. Audivi tamen alios etiam ibi esse, qui alio etiam modo lapidem extrahebant, quem modum nunquam ab aliquo, quamdiu Cayrum habitaverim, potui cognoscere. . . . . Octavious Roveretus Medicus doctissimus, mecum multo amore conjunctus, quique post me in Ægypto pro natione Veneta, medicinam multa cum laude faciebat, extrahendi lapidem hunc modum a priori satis diversum mihi litteris significavit, his verbis. *Aliud etiam satis scitu dignum tua Excell. narrare non omittam, estque modus aliquis a vesica lapidem extrahendi sine incisione, hic a quodam Arabe viro Christiano Sajetico ad quendam Christianum Cophtum vocatum, ab hinc non nullos menses operatus. Atque is est hujusmodi. Hic habet quasdam canulas, unam majorem altera, in modum musici instrumenti syringæ appellati, a substantia Cartilaginea, quæ facile dilatatur. Harumque graciliorem in virgæ canalem intromittit, figitque quousque ad vesicam pervenerit, moxque ore insufflando ipsam inflat quantum plus potest, posteaque hac majorem, vel crassiorem introducit, insufflandoque inflat eodem modo, et post tertiam, vel etiam quartam omnium maximam. Et cum sic iis virgam dilataverit, ut putet viam canalis fuisse sufficienter dilatatam, per eamque lapidem exire posse, Ægroto in primis commode collocato, digitoque in ano posito, lapidem ad collum vesicæ ubi majoris cannulæ extremitas pervenit, deducit, in cannulam lapidem conducere conatur. Quo facto altero cannulæ meatu ore excepto conatur spiritum ad se trahendo, lapidem simul trahere, qui si nimis crassus sit, sæpe rumpitur, atque in frustra attrahitur, veluti contigit supra dicto viro Cophto. Cui frustum, et reliquum lapidis admodum crassum, et durum, intus remansit, non eductum. Hic modus scitu est facilis; atque ab alio fortassis medico exercitatiori et acutiori multo plus facilitari, poterit, ac in meliorem atqne utiliorem usum reduci, quod multorum ab eo modo hominum infortunatorum auxilio summæ efflagitandum ac expectandum esset.* PROSP. ALPINI Med. Ægyptiorum 4° Lug. Bat. lib. iii. p. 226.

CASE OF VESICAL AND URETERAL CALCULI—SUPRARENAL ABSCESS—DEATH.

(See preparation No. 872.)

(By Charles Peter Markus, Ceylon Student of the Medical College.)

February 8th, 1845.
7 A. M.

℞ Ol. Ricini ʒvj. stat,

℞ Tinct. Opii ʒi.
Aquæ ℥ij. M. ft.
Enema. Stat.

Admitted into Hospital last night Mosin, a Native of Nadea, laboring under the following symptoms of about three months' standing. Complains of a dull pain about his abdomen particularly at the right lumbar region increased on pressure, the pain extends along the ureters to the bladder. He is very much emaciated, countenance indicates a good deal of suffering, stomach very irritable, he is unable to retain any food. Skin cool, pulse feeble, tongue pretty clean, there is a good deal of irritability of the bladder, urine secreted in small quantities and voided with difficulty in drops. When the urine is discharged in a stream it is stopt all on a sudden by some obstruction it meets in its passage. Complains of an itching sensation at the glans penis. By the introduction of the catheter a small quantity of water was discharged. The catheter was distinctly felt to touch a calculus which may be presumed to be a mulberry one, from its roughness. It appears to be situated at the neck of the bladder. Complains of fever coming on at nights, attended with rigors, heat of skin and profuse perspiration. Had an attack of gonorrhea three years ago, was suffering from gleet till three months ago when the above symptoms shewed themselves.

9th. ℞ Liq. Ammon.
Spt. Æther. Sulph.
ā ā ʒj.
Mist. Camp. ℥j. M. ft.
haust. every 2d hour.

Had two stools from the oil yesterday, the injection quieted him and enabled him to have a little rest. He is very weak, could scarcely rise from bed, pulse almost imperceptible, stomach continues very irritable.

10th.
Continue Æther mixture.

His breathing difficult, pulse imperceptible, voice indistinct, extremities cold, eyes sunk, pupils dilated and countenance anxious. Died at 8 P. M.

Sectio Cadaveris (eighteen hours after death.)

The right kidney very much enlarged and about thrice its natural size; it has formed close adhesion with the liver and ascending colon; on separating these, matter was found to escape from the kidney. The liver and ascending colon seem to serve as walls to abscesses, but there is no communication between these organs and the kidney. The investing membrane of the right kidney very much thickened and separated from the gland by pus and layers of coagulable lymph. The gland presents, on a vertical section being made along its convex edge a granular appearance, is of a reddish color and a large secreting surface. The left kidney of the natural size, but soft and flabby, the cortical portion seems to have been absorbed almost entirely, the infundibula are dilated. The ureters very much distended, having almost the diameter of the small intestines. They are convoluted in some parts like the sigmoid flexure. A calculus could distinctly be felt in the left ureter. The bladder contains a large mulberry calculus weighing about two and a half ounces.*

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* This interesting case, so creditable to Mr. Markus, arrived whilst these sheets were passing through the press.

PRELIMINARY OBSERVATIONS.

THE PATHOLOGY OF GENERATION.

The subject upon which we now enter, involves a consideration of the mysterious and wonderful faculty which is possessed by all animals, namely that of generation. It is true that vegetables also possess organs of generation, and the power of reproduction, but in man this faculty is so closely connected with volition, is in such constant operation throughout the greater part of life[*] as to assume some analogy with the divine power of creation. And perhaps one of the earliest forms of idolatry, and one most universal, was the worship of the power of generation under the gross representation of the male and female organs, the creature for the creator. This is a worship which still claims thousands of shrines, and millions of worshipers throughout India, and is the only one in it which can be called general. The wooden temples on the coast of Malabar, the marble fanes of Rajpootana, the cave-temples at Elephanta and Ellora, (especially that stupendous effort of human labour Kylass, where the solid mountain is cut out and carved into altars, dedicated to this *creative energy*, and covered with whole friezes of disgusting obscenity) ;[†] the ancient pillars and *láts* throughout India, from the huge mud-formed emblem exhibited in the

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[*] From ten years to sixty sometimes in Bengalee women, see p. 261.

[†] This will be more apparent from the following notes regarding these ancient remains, which I made whilst travelling through Central India with the Lord Bishop of Calcutta in 1836.

Throughout all these caves there is a simplicity which is very remarkable. The lingam always occupies the sanctum, and Budh in various positions, the different compartments although in others the same figure is repeated throughout. Sometimes he is sitting with a female on each side. In one, Bisma Kurn temple, is a large statue of him sitting before the lingam, which is in the shape of a dome, at the end of the great temple, covered by a chattah as in Carli. In the ornaments which surround the door is a distinct representation of copulation that cannot be mistaken. In the frieze too, men caressing women is repeated all round as well as in the frieze of the screen. This taken in connection with the size of the lingam and the honored place it occupies, sufficiently point out the meaning of this emblem to be rem-in-re. In the far less accessible temple-caves of Adjuntah in Central India the same emblem is found. In Carli cave-temple, which I still think nearly as beautiful as any at Ellora, this emblem alone is seen. The capitals of the pillars are ornamented (it is said,) by Siva and Parbutty riding on elephants with hands embracing each other ; while in the screen outside they are represented together on a large scale. In the small caves above Kylass the lingam alone, or the lingam and trimurti are alone represented. This three-headed figure seems by Mr. Erskine's account to represent a form of the union of male and female energies. I mention these as the least complicated. But in the great Kylass itself the very Pantheon of the gods, is sufficient evidence that however disguised by Brahminical artifice, the original and simple worship is the lingam, as emblematical of the power of reproduction (which being most like creation would be likely to attract early reverence.) Thus in the friezes of the central temple, all around, above and below, are represented men and women caressing, in some positions, too by no means equivocal. In the compartments also, and the outside of the four chapels the same is observed.

In the great central temple, isolated from the living rock, the lingam occupies the sanctum, in the four subsidiary chapels however varying, and to whomever dedicated it has the same place. In the beautiful temple said to be dedicated to Siva above the northern colonnade, called Lunka, men caressing women, in the most unequivocal attitudes form the frieze running round it. In the colonnades around the magnificent scarp which encloses the temple, are between each pillar some illustrations of the mythology of the bramins. But I observe the first compartment contains the ling garnished by nine human heads.

I can only say after carefully examining all these cave-temples I feel convinced the original worship was the lingam, which seems most simply shewn in the small cave-temples in the hill above, which from their appearance and the simplicity of their ornaments, I should think the most ancient of all. In these the trimurti and the lingam are only found. Then again we have Budh superadded in the Budhist caves, and in the Brahminical caves a whole host of gods and goddesses subservient in place however to the lingam. Captain Sykes says, of the figure at Kylass with water poured over her by elephants—" In the character of Luximee being worshipped as the goddess of fecundity, she is probably the Mylitta of the Babylonians, the Isis of the Egyptians, the Cybele or Tellus of the Phrygians and Greeks, and the Magna Mater of the Romans." The priority of Budhist to Braminical worship would seem strongly borne out by the statues of Budh being found in many of the so-called Braminical caves, but altered by paint and plaster, and christened after the wishes of the attendant Bramins. Parusnath (or Boodh,) in the fine cave above Indra Subbah, is an illustration. And in the latter each compartment is taken up by him in a sitting position while he occupies the central place at the end. In Juggernath Subbah, a cave-temple to the right of Indra, is a figure called Shaishar Bugwan, very like what is pointed out as Inderanee and meant probably to represent the same thing with Baghesree Bowanee on the tiger—in the third cave all compartments have a figure of Budh.

The view of these temples of Indra Subbah from without are very beautiful. The fine area enclosing the little temple called Dowlutabad, with its obelisk on one side, and the huge collossal elephant on the other, and temples behind :—the foliage of the shrubs in front with their fine autumnal tints. Then again on turning round towards the plain there is a glorious view from beneath the cool shadow of these fine trees. On one hand the curved form of the hill with its numerous excavations. Down on the other side the wide extent of beautiful country, closed in by dim blue mountains as if it were a basin.

The isolated temple containing a square linga ornamented by figures of Budh is very pretty—and the effect of the massive square pillars in the temple beyond is very fine. The stone is hard and polished, and the chunam and colors left in many parts. In the caves here to the right and left, the pillars are most beautiful, exquisitely varied, yet appearing uniform. The story above forms another beautiful cave or temple to which you ascend by steps in the rock. Here again men caressing women is commonly represented. There was one of the small caves up the nullah which was most romantic in situation. It was square and contained only the ling and tryad—but the water from a mountain stream above, fell from a height of many feet over the front of it, into the rocky nullah below ; and around it were beautiful large masses of red vegetation like mosses. The view from it was most delightful. I sketched the inside ; the tryad exactly resembles that at Elephanta, but Capt. Basil Hall's "*third eye*" seems in this to have been a mark of cast, lozenge-shaped.

The wonderful conception and execution of a Kylass, will hardly be appreciated by those who have not seen it. What manner of man must he have been who conceived the idea of taking a hill from the mountain side, cutting out and isolating a solid stone rock, and fashioning that with perfect symmetry of design into vestibule, corridor, grand temple and subservient chapels supported on backs of elephants and griffins—with collossal elephants on each side, an exquisitely fashioned obelisk ; and leaving a noble temple and colonnades in the scarp of surrounding rock. And all this is ornamented in so profuse a manner, and yet so symmetrically, as to maintain a perfect unity of design. It is only when you stand between this isolated temple and the scarp that you become sensible of the grandeur of the undertaking and are assured that these beautiful forms around are not *constructed* but *left*, formed and fashioned out of the living rock. The figures with reference to those of Greece are bad. But the pillars in some caves are most beautiful. Here are all the Grecian capitals, but many other orders besides. The pillars although varied in a most extraordinary manner, still streets of Poonah,* to the stately pillar, "the ringlet on the forehead of Chetore,"† which however fair without, within is filled by images of lascivious indecency: indeed every village, every city, every river, every hill and mountain, to the very snows of the Hymalaya, all attest the universality of this worship at one time throughout the land: and it still continues notwithstanding the furious zeal of the followers of Mahomed has strewed the country in its length and breadth with the ruined shrines and altars of its worshipers.

Nor are these considerations irrelevant to a full understanding of the pathology of the female organs of generation, in this country; since many of their most serious lesions, result from vicious institutions or practices connected with this very idolatry, so fatal to that only safeguard of chastity,‡ purity of mind. The organs of generation, regarded as causes of generation, are instruments acted upon for good or evil, by the mind and moral feelings of man, these therefore cannot be omitted, whilst treating of generation in man. Where these feelings are morally depraved and diseased, the generative faculty may be impaired or destroyed, both in the male and also in the female.§ Or what is far more frequent in women

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maintaining their character, which like the elephants seem only able to support the superincumbent mountain. Kylass stands in an area 401 feet long by 185 broad. Besides temples in the scarp, which scarp from base to top of hill is 104 feet.

Some idea of the extent of these excavations may be formed when I mention that the temple called Doomar Leyna is 185 feet long by 150 broad—height 19 feet, twenty-eight pillars and twenty pillasters. At the further end is the sanctuary with four doors guarded on each side by collossal Darpais or Chobdars. A large area is left in front of the cave—in which two collossal lions or tigers are couched; on the side areas are the same. They call to mind similar representations in ancient Egypt. The effect of the light which streams through the side openings here cut to the top of the hill—and descend through these side entrances is very grand—in fact these works are stupendous, and could only be done by the people who projected Doulatabad. Besides the lingam which is in the sanctuary, this cave had a circle cut deep in the floor, was this again their mystical O M?

* I saw this in 1836.

† I visited Chitore also in 1836.

‡ Prof. H. H. Wilson says that the Linga Puráná, is not itself indecent. The commonly received story is taken, I believe, from the Skanda Puráná, and although the mythos be obviously this, that all space is filled with evidence of creation, yet the actual immorality attending the worship as occasionally seen and heard of, at Sreenugger, Muttra, Benares, Allahabad, and other places of pilgrimage, better agrees with the obscene representations upon the temples themselves.

The most ancient perhaps of all the cave-temples which I have seen, are those at Adjuntah. There I did not observe, neither in the fresco paintings nor in the sculptured relievos anything indecent, so that originally there might be "nothing like the Phallic orgies of antiquity;" . . . . it might be "all mystical and spiritual. The ignorant only worshipping Siva through a mark or type, which is the proper meaning of the word Linga," p. xliv. Preface to H. H. Wilson's Vishnu Puráná, 4to. Ed. London, 1843.

§ AVICENNA as an eastern vizier, as well as physician, must have seen much of the evils which human depravity can produce, in the dissolute courts of his time. Those who have seen the Native courts of India will comprehend what he says of one class—*De alabone Vel alabene* Et secta eorum est q quando cum eis coitur, non emittunt sperma tunc, immo declinat ad hoc, vt coeant cum aliis; et sunt in veritate prostratae animae, et maligna naturae et malae consuetudinis, et complexionis muliebris. Et quq sunt membra corummeliora q membra virorm, Et scias q omnia quae dicuntur praeter ista, vana sunt. Et stulti homines sunt qui volunt eos curare. *Nam agritudo corū est mentalis, non naturalis Si vero confert cura cis, tunc est illud quod frangit desiderium eoru ex tristitia, et fame, et vigiliis, et carcere et percussione.* AVICENNA, *Liber III, Fen XX. Tract II. (fol.* 377)

its *end* may be perverted from the reproduction to the destruction of the tender fruit, for which she has been so wonderfully formed, and so richly endowed, to conceive, to bear, to nourish, and bring forth. It is said by **Aristotle**, in the beginning of his justly celebrated treatise upon this subject, that the members in animals considered in their general properties, and specific peculiarities, exist each in a certain manner for a specific cause. In the female organs, reproduction is the end and motive of being. The "material cause" or materiel of generation is partly male, and partly female, and the "efficient cause," the "beginning of motion" or motive cause, is male.[*] This at least, coincides with the latest results of investigations into this important subject, which have always had so much of interest for philosophical minds, from **Aristotle's** days to our own; and have been prosecuted by our greatest physiologists in England, by **Harvey**, **Hunter**, **Home**, and lastly **Barry**, until "The mysterious process of generation has been unveiled almost as completely as it is likely to be; for it has been shown to be reducible to the ordinary principles which govern the nutrition of the fabric; the difference being, that the cell-germs are not developed within the cell that produced them, but are conveyed into others, where nourishment is prepared for them by a different set of organs, which usually belong in animals to a different being."[†]

I cannot consistently with the plan of this work enter minutely into the subject of embryology. The writings of those great men to whom I have alluded may be most profitably consulted by those who wish to learn, for they were men who did not confine themselves to mere speculations and idle

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Cap. 42. Edit. fol. Venet. 1555. The case related by **Mr. Evans**, No. 206, shews the more common effects of female prostitution. Sterility occurs also from the inflammation consequent upon repeated abortions or upon gonorrhœa. But the horrible effects of more secret depravity may be learned from cases recorded in the Boston Medical Journal. "In 24 of the above cases *the practice was common to resort together* for vicious indulgence"..........."self-pollution is a vice, more than any other, of a highly contagious, and virulent character, and the congregating of females together in various manufacturing establishments is a most fruitful source of moral contamination. One female may thus spread the habit among hundreds"—(*India Journal Medical and Physical Science, Vol. I. for* 1843, *Page* 427.) **Morgagni** shews that the practice is not confined to manufacturing towns, the deplorable cases which he cites "were the greater part of them Italian country girls." "I could wish, he adds, all our countrywomen knew how many of their sex have been untimely carried off by the most excruciating tortures from this cause. But how can *country-girls*, or girls of the lower class, and such as even their tender years render inexperienced, be acquainted with these things?"—*Morgagni, Letter XLII. Art.* 27, *Page* 509, *Vol. II. London* 1799. See also the horrors which **Tissot** has related upon this head, or a work, by M. **Deslandes** "de la Onanismi at des autres abus veneriens." Especially the, 'epouvantable histoire,' p. 102 of a young man become '*etre bien au dessous de la brute, spectacle dont on en peut concevoir l'horreur.*'

[*] "Ponimus enim causarum genera quatuor numero. Primum, cujus gratia, ut finem. Secundum substantiæ rationem, quæ quasi unum quoddam ferĕ existimanda sunt. Tertium vero, quartŭmque, materiam et id unde principium motus." **Aristotelis de Gener. Animalium**, Tom. I. Lib. I. Genevæ, 1505. fol. Edit. Cap. I. (p. 796). Again he says "Generationis enim principia, ut retulimus, illa potissimum quis statuerit, marem et fœminam. Marem, et quod motus, et generationis, originem teneat, fœminam, ut quod materiæ." **Op. Cit. Lib.** I. Cap. II. (p. 797.)

[†] **Home** (p. 293) Lectures Comparative Anatomy vol. *t*. London 1823.

G. **Harveii** Opera Omnia, London, 1766, (p. 161.)

See J. **Hunter**, (p. 8.) Descriptive, and Illustrated Catalogue, London, Col. of Surgeons, vol. V. 1840.

Barry, see Dr. Carpenter's report, Forbes's Journal, p. 266, January 1843.

dreams. They however who wish to know what influence the stars exert upon this process may consult Albertus Magnus,* where among his *secretis mulierum*, will be found some very strange secrets indeed.† Whilst Michael Scott, of wizard reputation, discourses *wonderfully* about charms for preventing,and charms for producing conception, not without an appreciation however, of those less occult charms, which long before fair Helena attained to Homeric fame, were known to have a good deal to do with it occasionally. But whether or not this fascination, which was too powerful even for "the wisest man the world e'er saw," be really a species of celestial attraction as many of the poets affirm, or whether it be a mere natural fascination as the wisdom of the Egyptians‡ led them to infer, or whether it be as Plato suggests simply our Androgynous yearning to the dissevered half, must be left to the learned to decide. (*see* Platonis *Opera Convivium, vel de Amore*, lib. xxv. p. 425. Basil 1557.)

The belief in astrology is still universal among the Hindoos, I do not know, whether or not, it lead them to the same preposterous extremes with

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* *See* pp. 46 to 50, also p. 33. Where Albertus gives a *general* account of the celestial influences, but wanting in that lofty pretension and philosophical spirit which characterizes the great Albumasar. Comparing medicine with astrology Albumasar says, "Medicus quidem elementorum alterationibus operam dat. Astrologus stellarum motus sequitur elementarie ad alterationis causas." And having proved its superiority to medicine he concludes by asserting that it as much excels all other sciences in dignity as heavenly things excel earthly. (His very curious work translated into Latin and printed in 1489, at Augsburgh, is in the possession of my friend Dr. Sprenger.)

† PREVENTITIVES OF CONCEPTION.

Et dixerunt philosophi, si annularem abortiui suspendit super se mulier, non concipit donec permaneat super ipsam. Et quando bibit mulier urinam arietu nunquam concipiet ; et quando bibit sanguinem leporis non concipit : Etsi stercus leporis suspendatur super muliere, non concipit donec permaneat super ipsa, &c. *Alberti Magni, De Mirab. Mundi.* (p. 209). *Lugduni*, 12mo. 1584.

The Hindoos fully believe in the possibility of preventing conception, by administering certain substances, which if they do not act as charms, it is difficult to say how they do act. The following are some of these recipes which have been furnished me by a very intelligent student of the Calcutta Medical College.

HINDOO PREVENTITIVES OF CONCEPTION.

Boruze Pan root, black pepper corns 25, to be taken standing, in water up to the neck, and to eat rice boiled in a lime pot, for the day. Again—Red broad cloth (Sooltani Bonat) in Kantally plantain is swallowed to prevent conception as in the following cases.

Certain medicine was taken by a woman with an intention of not conceiving any longer, who was in the habit of conceiving yearly ; since the remedy was taken she never conceived for the space of eighteen years that she cohabited with her husband. Certain remedy was taken by one woman who was in the habit of conceiving every third year, and since she took the remedy she lived with her husband for twelve years without conception. These two cases happened with married respectable women of rank who gave the account themselves. Again a woman took a small piece of red broad cloth in Kantally plantain, to prevent conception. Before this time she had six children. But since she took this remedy she did not conceive at all. A certain woman who was in the habit of being confined once every three years, her husband being dead, fell in love with another man, to prevent disgrace on the family (from the effects of her amour) she took a certain remedy to prevent conception in which she perfectly succeeded.

‡ "Res inferiores miris fascinandi viribus prœditæ, has ab orbibus cælestibus acciperunt, per quos etiam agunt" .... Cap. iii. Non aliter quam is qui intellectu maxime viuit, ubi mulierem formosam conspexit, eandem amat atque expetit, sine ulla fascinatione quæ arte constet, naturalis enim fascinandi vis virum, ad mulieris formam allicit illumque cum hac conjungit, non loco sed animo." *De Divina sap. secundum* Œgypt, Lib. vi. (p. 805.) Arist *Op. tom. II.*

Europe in the 15th century, and to assign a specific duty to each particular star: to *Mars* the dividing of the limbs from the trunk; to *Sol* the formation of the heart; to *Venus* of "that which distinguished the gender;" to *Mercury* the eyes, eyebrows and hair. An ignominious descent indeed from that exalted office which PLATO attributed to them.* But upon the birth of an infant, however poor the parents, its horoscope must be cast by the Bramins, who

"Make opposition, trine, and quartile,
"Tell who is barren, and who fertile,
"As if the planet's first aspect
"The tender infant did infect
"In soul and body, and instil—
"All future good, and future ill."

And although they profess to effect conception by the mere operation of spells, it is tolerably certain that they do not always rely upon them alone; whilst the drugs which they administer to prevent conception, or to get rid of it, and hide the shame may not be fatal to the child only,

"Sed jacet aurato vix ulla puerpera lecto.
"Tantum artes hujus, tantum medicamina possunt,
"Quae steriles facit, atq homines in ventre necandos
"Conducit." JUVENAL, Sat. vi.

As my object is the illustration of *Indian* pathology, I shall consider it my province to give especial prominence to all that relates to INDIA.

Now it was upon an ancient theory respecting generation, very much resembling our own, that early marriages seem to have been instituted in India. It was said that if an unmarried girl has the menstrual secretion in her father's house, he incurs a guilt equal to the destruction of the fœtus; that is, according to the doctrine of PYTHAGORAS and the theory of the ovists, all the materiel of the new ovum, and the ovum itself, is formed by the female, menstruation was therefore the loss of the ovum or loss of the fœtus.†

How strange that a doctrine professing such regard for the generative germ, should lead eventually to a reckless destruction of the fœtus itself. The ovum of the female, passing off unimpregnated, is equal to child murder. To escape this great sin, *children* are married, and at the tender age of eight, nine, or ten, before even this menstruation appears, are subjected to sexual intercourse; which in some instances is fatal to them (see No. 204 of the preparations.) By law they cannot marry again upon the death of the *boy-spouse*. Nay, if a Hindoo girl be but one only of the hundred wives of a Koolin Bramin, whose only trade is marriage, she can never be released at his death even, but must always remain a widow. And unless the Government should vindicate nature's law, and do as much to suppress polygamy as polyandry there seems no hope for them. Thousands of women are thus living in hopeless celibacy, surrounded by institutions and practices if not wholly subversive of chastity, at least very unfavorable to it; indeed it has no other safeguard than the dread consequences of losing caste.‡

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* PLATON. Op. lib. xxxii—p. 710 in the '*Timæus vel de natura*,' he says "He who has well run the race of this life, will in the next return to his own particular star. But he who has been overcome of evil, will next become a woman"—(The same is repeated p. 733.) If this do not mend him he must indeed be a brute—and a brute accordingly he becomes, "eatenus in brutorum suis moribus similem permutari."

† *See* ATRI and KASYAPA.

‡ In two instances reported to me, women acknowledged to have effected abortion in order to preserve their caste, as many as eight times in one instance, and ten times in

The result of this state of things is a fearful amount of crime. Perhaps no country on earth has immolated so many new-born infants as India, nor has any race of mankind more generally practised the abominable art of murdering children when yet in the womb of the mother. The art of producing abortion and all its long train of evils, at once subverting both the order of nature and the end of being, is but too openly practised even now. Whilst the strong arm of a humane Government has done much to cleanse the land from the foul stain of child-murder,* it has not been able to reach this more common and secret practice of abortion, as many of the preparations in the museum sufficiently attest, and also that the death of the unfortunate mother is no uncommon result of this crime, which in other instances leads to hopeless sterility.

Climate has generally been the apology for these early marriages, which the more enlightened Hindoos call the 'monster evils' of their country.† But it is not common for girls in India to begin to menstruate until after the 12th year. I have known instances also in England of its taking place in the 12th year. Those writers who lived in Europe before the 15th century as the celebrated MICHAELUS SCOTUS‡ and ALBERTUS MAGNUS§ speak of the 12th year as that from which menstruation begins. MR. ROBERTON of Manchester has been at much pains to prove that the age when this function begins, which is supposed to mark the commencement of the generative faculty in women, does not vary much in any part of the world. And I am happy to be able to confirm his views as respects this country. Girls even in India do not at once step from childhood to womanhood unless unnaturally *forced.* Out of a list of 127 Hindoo females with which I have been favored, it began only in 6 girls under 12 years of age, and as many of them did not again menstruate until a year after this which they believed a *first appearance,* it is probable as suggested by BABU MODUSUDEN GUPTO that a ruptured hymen would better account for that. Thus 81 out of 127 are stated to have been 12 years old or upwards.

Out of eighty cases thus furnished who had probably been subjected to the influences of impregnation from the age of nine years, there were only 28

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another. Whilst even the native newspapers speak of it as a disgraceful, and a crying evil, requiring suppression.

* This used to be common among the Rajpoot tribes. But now the Indian Government insists, under penalty of fine, that the heads of villages shew a fair proportion of boys and girls. In some parts of the Hymalaya it is now getting common for a respectable man to have a wife of his own instead of sharing her with half a dozen brothers, or a dozen fellow villagers, which was once the universal practice as it still is among the Bootias. When last I visited the sublime scenery of those hills, (1840,) I was rejoiced to see it enlivened with the merry blooming faces of children of *both* sexes.

† "Of this premature developement, early marriage, one of the monster evils of our country, is the natural and inevitable result. It also accounts in a great measure for the degradation of our females; she becomes a woman *when she is a child in understanding.*" *Discourses of the Hindu Theophilanthropic Society* for 1844, vol. i. (p. 93.)

‡ Michael Scot says, "Secundú est quod natura ad hoc sibi tribuit quoddam purgametum, quod humorem virtus naturæ ciecit ab eis *omni mense, a xij anno usque* ad annos xl—l." DE SECRETIS NATURÆ, *Cap* vi, *de menstruis*, p. 257, Lugduni, 1584.

In the text of ALBERTUS MAGNUS we find "Juxta quod notandum, quod menstrû in muliere nihil aliud est, qua superflua alimentú quod in substantiam rei aliunde non recedit, sicut est in viris sperma: Et vocatur menstruum in muliere ideo, quia fluit in quolibet mese ad minus semel, cum mulier tantæ ætatis fuerit, hoc est, 12, 13 vel 14, annorum, et ut frequenter accidit in decimo quarto." **DE SECRET. MUL.** *Cap I. de Generation. Emb.* p. 19, Lugduni, 1584.

births under 14 years of age, but similar results would perhaps have followed similar circumstances even in Europe, as may be inferred from what occurs in the semi-barbarous conditions of society there, or where the bands of decency and order are rent asunder, during the great revolutions and convulsions of states. Besides what we have seen in the records of the French revolution, **Aldrovandus** (1642) cites observations, that prove births to have occurred in Europe, at 8 and 9 years.[*] **Home** speaks of births at 12 and 13.[†] Out of 127 cases reported to me of Bengalees, one birth is stated at 8, and one at 9. I have not found that East Indian girls, and European-bred girls, born in India, menstruate earlier than in Europe, and I have had for nearly three years a wide field of observation in the hospitals of the Government Orphan School, (under my charge,) in which there are rarely less than 200 girls. It is not common for menstruation among them to begin until fourteen. The fact of a first menstruation is always reported to the head mistress, who has never known one single instance of its occurrence before the age of 13. Very often it is delayed till 16, 17 or 18. There is no difference in this respect between European, European-bred girls, and East Indian. Between 13 and 14 it is most common. It follows therefore, that climate has less to do with this function than has been supposed, especially when we add, that instances occur in Bengal of native women having children at fifty and sixty. Twins were born as late in life as fifty-eight years in one instance, and sixty-five in another, in the last case however the mother died.

I believe that even the fact of the existence of this function having been well established, is no proof of the girl being fit to become a mother, that is, to bear a living child. Almost the only instances I have known here, of instrumental labour in European-bred females, were from their having married too young. Whilst if we look at the Europeans, Armenians and Jews, among whom these childish marriages do not occur, we may infer that the Bengalee owes his physical inferiority less to the climate, than to this system of children begetting children. It was long ago asserted by **Susruta**, that such unions can only lead to imbecility. And long before him, the Greek sages and lawgivers had acted upon it as an established truth.

"It is worthy of notice that the women of ancient Greece do not seem to have been considered as in any sense precocious. On the contrary, the age of marriage was probably as late in Greece as it is in the most refined nations of northern Europe at the present time. The climate being the same then as now, the difference between the modern and the ancient Greeks must, therefore, be sought not in the physical but the moral condition—not in the bodies, but in the low state of civilization of the people. "The time of marriage," says Archbishop Potter, speaking of the ancient Greeks, "was not the same in all places; the Spartans were not permitted to marry till they arrived at their full strength; and, though I do not find what was the exact number of years they were confined to, yet it appears, from one of the sayings of Lycurgus, that both men and women were limited in this affair, that lawgiver being asked the reason of this enactment, said his design was, that the Spartan children might be strong and vigorous, (in a note it is added, 'It seems probable that the usual age for men was thirty and for women twenty years.')" The Athenian laws are said at one time to have ordered that men should not marry till above thirty-five years of age; for human life was divided by Solon into ten (εβδομαδες) weeks, and he affirmed that in the fifth of these men were of ripeness to multiply their kind; but this depended upon the humour of every lawgiver, nothing being generally agreed to in this matter. Aristotle thought thirty-seven a good age; Plato, thirty; and Hesiod was much of the same opinion.

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[*] "Nihilo minus **Schenchius** in observationibus memorat pueros septem, nonem, et decem annorum, qui congredientes generarunt, et puellas octo annorum, quœ utero gestantes pepererunt—Et quamuis homo mas usque ad annum septuagesimum, et femina usque ad quinquagesimum generare possit; veruntamen **Schenchius** meminit mulieris sexagenariæ quæ ex sene septuagenario concepit, nec non virorum, qui ad octuagesimum sextum annum, et usque ad centesimum congredientes pepererunt. (Page 44.) Tom. xi. *De Monstris.*

[†] **Home** Lect. Comp. Anat. Vol. III. p. 305.

Women married sooner than men; some of the old Athenian laws permitted them to marry at twenty-six; Aristotle, at eighteen; Hesiod, at fifteen;† though some think the latter means not at fifteen but in the nineteenth year.

It may well surprise us that so much is attributed to climate by recent writers with reference to a country which was once regarded as the most favoured in the world,—the seat of whatever was greatest in intellectual culture, as well as most elevated and pure in the nature of man. It seems to be forgotten by those who apologise for infantile marriage in Modern Greece on the ground of sexual precocity, that it was in the same region, and in the language of its people, that the principles and duties of the Christian religion were first promulgated, and that it was to Greek converts that an apostle, after enumerating their impure habits indulged in a heathen state, could venture to say, "but now ye put off all these."* Edin. Med. Surg. Journ. July, 1844, p. 10.

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* I find these opinions of Mr. Roberton strongly confirmed by other writers:—"Nous trouvons que dans les temps reculés ou y attachait beaucoup plus d' importance qu'on n'a fait depuis. En effet, les législateurs, les philosophes les plus anciens ont toujours combattu la précocité des mariages. Les lois de Lycurgue sont surtout remarquables á cet egard : elles défendent aux hommes de se marier avant trente-sept ans, et le permittent aux filles à dix-sept. Xénophon et Plutarque, en cherchant à préciser l'esprit de ces lois, assurent qu'elles ont été conçues pour obtenir des générations plus vigoureuses. Aristote exigeait que l'homme fût de vingt années plus âgé que la femme, afin que leur fécondité se perdit á peu près en même temps ; mais aucun auteur ne s'exprime avec plus de sévérité que Platon, en assignant, pouz la propagation, à la femme la vingtième jusqu'á la quarantième annee, et á l'homme la trentième jusqu'à la cinquante-cinquième ; il veut que tout enfant procrèe par des personnes audessus ou audessous de cet àge soit noté d'infamie. Tacite rapporte que les jeunes Germains ne connaissaient pas l'amour précoce. "On sait, dit-il, conserver les forces productrices jusqu'a ce qu'elles soient mûres. Les femmes sont soumises à la même loi, et l'on attend jusqu'a ce que l'âge et la force des deux sexes se trouvent en rapport suffisant pour procréer des enfans sur lesquels la vigueur des parens est empreinte." Again continues M. Marc—

"Mais quelles conséquences bien plus déplorables encore les mariages précoces ne présentent-ils pas, lorsque nous portons nos regards sur les fruits qu'ils font éclore ; fruits comparables à ceux que, par une chaleur artificielle, on extorque au sommeil de la nature ! "Les mariages précoces, dit Aristote, s'opposent à une bonne génération ; car dans le règne, animal entier, les fruits qui naissent du premier signal de l'instinct producteur sont constamment imparfaits ; ils n'ont aucune forme bien prononcee. Il en est ainsi chez l'espèce humaine, et la preuve en est que partout où l'on admet les mariages précoces, on remarque des hommes petits et chétifs." C'est avec raison que M. de la Fontaine, premier chirurgien du dernier roi de Pologne, attribue aux unions prématurées des juifs polonais, l'extrême dèbilité physique que l'on remarque en eux et leur progéniture. Giovanni Botero attribuait, il y a deux siécles, aux mariages un peu tardifs, la beauté du sang, à Raguse et à Gravosa. Montesquieu affirme que la crainte

FECUNDATION.

The various theories which have existed as to the separate parts taken by the male or by the female in this process, well illustrates the tendency of man to dispute most fiercely about matters least capable of demonstration or far removed from the highest flight of his reasoning powers*—

"Vain man would I be wise, though man be born like a wild ass's colt."

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du service militaire determina au mariage un grand nombre de jeunes gens á peines pubéres ; que ces unions furent, il est vrai, fertiles ; mais que bientôt les maladies et la misére privérent la France de la gènèration qu'elles avaient produite. Dict. des Scienc. Med. tom. vi. p. 255.

* It is curious to see how philosophers as well as doctors differ. We see ARISTOTLE disputing about these hidden mysteries with EMPEDOCLES (at p. 804) GALEN with ARISTOTLE, (de semine lib. ii. cap. 4) and expresses his surprise that men who had never dissected should pretend to talk upon these matters. "De fœtui formatione philosophi etiam nulla ex dissectione confirmationem adhibentes scribere agressi sunt. (Galeni de Fœt. form.) p.647. And laying about him upon CRYSIPPUS, the STOICS and the PERIPATETICS, for pretending to a knowledge of embryology at all (*de Fœtuum form*. cap. 4. p. 650. GALENI. Perg. Op. Om. Fol. Frobeni Edit. Basiliœ, 1562.) In later times GALEN himself is accused of having never dissected an human uterus and comes accordingly under the lash of VESALIUS, who says (p. 465.)' num Galenus muliebrem uterum unquam secuerit, sive libros de usu partium praecepue autem decimumquartum et decimumquintum, sive librum de uteri dissect, evolves et quia longum esset, a me omnes conjecturas, quibus id auguror, persequi, aliquot duntaxat adjiciam.' AND. VESALII DE CORPORIS HUMANI FABRICA. LIB. V. CAP. XV. tom. I. Fol. Lugduni 1775. That VESALIUS is himself wrong in making a continuous duct of the vas deferens from the ovaria to the uterus is quite certain, and the less excusable as the plates which are given in his work, published in 1725, leave no gap between the testis as he calls it, and the "vasis semen in uterum deferentis initium," marked S. which in the (Gynæciorum) published in 1586 at Basil (Iconibus illustratas *Ex. Cl. V.* D. FELICIS PLATERI) are rightly, distinctly and separately represented in Fig. II. and Fig. IV.—We are either not so wise or not so wary as lawyers. Even in our day the censure of Butler is not inapplicable.

"Anatomists dissect and mangle
"To cut themselves out work to wrangle !

As the disputes of BARRY, BISHCOFF and JONES attest. (*see* Forbes' Jour. Oct. 1843, p. 523.)

ARISTOTLE says that woman is not seminiferous (*de gener. animalium Lib. I. Cap.* xx, p. 811 Fol. Genevœ 1505.) "Quod si mas est vt mouens, et agens, femina qua femina, vt patiens, sequitur vt ad maris geniturain, femina non genituram, sed materiam conferat ;" again—

"Semen autem cum excrementum sit ; eodemque moveatur motu quo augetur corpus digestione ultimi alimenti ubi uterum subiit costituit et mouet excrementum feminæ eodem motu quo ipsum movetur. Habet enim eas partes potentia." "E menstrua semen sunt, quanquam non purum." Op. cit.

"Quo argumento constat etiam, non omni ex parte corporis genituram prouenire. Neque enim distincta statim inde ex eadem parte secernerentur, neque postquam simul ad vterum deuenessent, ibi distinguerentur. Sed euenit porro quod ex recta ratione est, vt cum mas formam, et principium motus prœbeat femina corpus, atque materiam, (quemadmodum in lactis concretione corpus lac ipsum est, succus, aut coagulum principiù spissandi, cogendique obtinet sic quod à mare in femina distinguitur, intelligi debeat.—Op. cit. loc. cit.

"Juxta quod notandum est diligenter, et memoriæ commẽdandum, quod omnis homo qui generatur naturaliter, ex semine patris, et menstruo matris generatur, secundum intentionem omnium philosophorum et medicorum. Et dico medicorum, quia Aristot. non posuit semen patris in substantiam fœtus cedere, sed dicit fœtum tantum procedere ex menstruo, et postea ponit ipsum vaporabiliter exalare. Medici autem dicunt totum semen, tam ex parte patris (quod sperma dicitur) quam matris (quod menstruum dicitur) cedere in substantiam fœtus." ALBERTI MAGNI "*de Secretis Mulierum*," Lugduni. *De generatione embryonis*, Cap. 11. (p. 15.)

HIPPOCRATES with the ancient Hindoo writers makes woman seminiferous.

"Habes autem et hoc sic : quandoque quidem fortius est semen a muliere emissum, aliquando vero debilius. Similiter etiam quod vir emisit. *Et est tum in viro fœmineum itemque masculum semen, tum itidem in muliere.* Fortior autem masculus

When man can by reasoning find out why the acorn shall produce an oak and not a turnip nor potato, he may understand why the result of sexual intercourse of the human species should be, after nine months, an infant clothed with exceeding beauty, a loveliness which has ever found its greatest admirers, among men whose genius has led them to the finest perceptions of the beautiful; as Raphael, Corregio, Reynolds, Chantrey, and Laurence. That this child-like beauty and capacity, is only a transition state to one of greater capability, of far nobler dignity and beauty we know. And that from this state again, if wisely used, there is yet another transition to one still more excellent, we may infer, from these various conditions of being, taught us in fœtal life; for that man will yet throw off his mortal coil, and this mortal put on immortality, is not only now, the assured conviction of the wisest and best of mankind, but it was taught more or less perfectly, by Plato to the Greeks, by Menu and Kapila to the Hindoos, and Gautama to the Chinese and Tartars. Indeed the doctrine of the metempsychosis probably originated in these changes of man, from his first germinal life, to that which makes him only less than divine: and one cannot but regret that great truths, only partially expressed are so often and so easily wrested to evil.

But this is a 'pregnant subject,' prolific in every way, and especially in reflection. To return however to facts. It may be asked, how do we know that the generation of man is effected by the impregnation of an ovum in the ovary? How is this proved? It is plainly consistent with analogy in other animals, but how do we know that the male and female may not each furnish semen which, mixed and coagulated in the womb, will produce offspring in which the qualities of both parents are united. This is very plausible, and was maintained by the Hindoos as Susruta; by the Greeks from Hippocrates to Galen, and by their followers the Arabian writers as Avicenna and others. It was a generally diffused doctrine in the earliest schools of Europe, as set forth in the following verses which are quoted by Aldrovandus, Jacob. Ruffius. Nic. Rocheus, and others, from Ægidius (Romanus?)

"Injectum semen, sex primis certe diebus,
"Est quasi lac; reliquisq. nonem fit sanguis: et inde,
"Consolidat duodena dies, bis nona deinceps,
"Effigiat; tempusq. sequens producit ad ortum."

When we find the same simile in Hippocrates and Aristotle, we cannot but recollect one still more ancient. B. C. 1550 (Job x. 10, 11, 12.)

Hast thou not poured me out as milk,
And curdled me like cheese?
Thou hast clothed me with skin and flesh,
Hast fenced me with bones and sinews.
Thou hast granted me life, and favour,
Thy visitation hath preserved my spirit.

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fœmina est, necesse est igitur ipsum a fortiore semine generari, habetque res hoc modo si ab vtrisque semen fortius prodierit, masculus erit partus: si vero debile, fœmina nascetur." Hippocratis Liber de Genitura (p. 33) 1564. Again—"Simulque cum spiritu sanguis intra per pelliculam trahitur, qua parte perforata est, et a genitura distat *congelaturque* et futuro animali augmentum præbet."

Michael Scott returns to Aristotle's opinion (De Secretis Natura, p. 247 utilitas phisionomiæ.)

Ulyssis Aldrovandus, has "*Figura ostendens tunicas cum mistura genitura.*" Monstr. Hist. fol. Bononiæ 1545—(Page 45.) he says "*Cum igitur ambo semina coaguli ad formam mista, et conclusa* sint, ut superius fuit relatum, a primo die usque ad septimum plurimæ." &c. &c.

This theory, however, of the spermatists, in which a most ancient yet plainly poetical simile, is seized upon as a physiological fact, is easily refuted; for the coction of which they speak as necessary, and taking place in the womb only, cannot be necessary to the formation of a fœtus produced without (exterior) to the womb. In No. 582 it is seen that nothing of the kind took place.*

How, it may be asked, do we know that the male germ enters the female germ? We answer, because it has been seen. We see the fœtus produced in the ovary and the ovum again has been seen loose in the womb† —but the place it had left vacant in the ovary plainly *seen*. And when more than one ovum is seen in the womb—more than one empty cell is seen in the ovary. Again the seminal fluid has been *seen* pumping into the womb; it has been seen in the fallopian tube; has been seen in the germ itself. Every link in this chain of evidence is complete.

VIVIFICATION.

But besides the question as to the manner and degree in which either sex contributed to the formation of the fœtus, there was another point equally abstruse, equally mysterious, and therefore contested with equal vehemence both by philosophers and physicians. How did it acquire life, what was this life? is it soul, and if soul is it an independent soul, as regards all other souls exterior to the body, or is it a quality of the individual soul only.

Aristotle says, that there is life, or soul, in the semen itself; that like as there is a vegetable life in vegetable seeds, there is animal life in animal semen, and a rational life in man. But this divine mind, or anima is in man distinct from elemental life, it comes from without, and in the immateriality and spirituality of its nature, different however from the elemental condition of fire ‡ and heat, is allied to the nature of the planets, and stars (respondens elemento stellarum.) He says that the semen being an excretion (or secretion) from food, cannot contain that which the food had not, and therefore cannot contain the divine life, which comes from without:—that it may be resolved into spirit and evaporated, when it cannot operate the change of generation which he compares to the change which rennet makes upon milk, without uniting with it (he says.)—Therefore the anima being distinct and separable, may be united with the male and female sperm to form a new being, or may pass off without generating at all.

Susruta says, ' that the semen has the property of water, and the menses the property of fire, but the other elements must be present in them in greater or less proportions, because without their combination nothing can exist, (and also they are not contrary to each other.) Again he says—When the semen and the menses are mixed in the uterus, they by their own nature effervesce or froth, and then it is called *garbha* (genitura). Then the soul enters it, and afterwards the air divides it into various parts, and the fire concocts it, and the water moistens it, and the earth gives it solidity, whilst the ether expands it.

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* See also Edin Med. Journ. vol. LV. p. 482 *with plates*. Forbes' Brit. For. Med. Rev. Oct. 1843, p. 52.

† See plates CVII, CVIII, and the case p. 290, 291, 296, 304, vol. iii. **Homes'** Lectures on Comp. Anat.

‡ We should remember how difficult this distinction would be, without chemistry **Plato** fully understood it, *see* p. 727 Timœus.

In later times **Van Helmont** combined his dynamic principle of *ferment* common to all created matter, with another, inseparable from organized matter, which he calls, the *archæus*, which suffices to build up a recipient form for the true light of life, which comes from God only.

" Animal does not generate animal, but the seed in order to the animal. And the seed is to the form of the animal as a disposing architect, but not as the maker of the form. The archæus is borrowed from the parent, but not the form, nor the light of life by which the form shines. (Van Helmont, quoted p. 10.)

" In every seed, indeed, there is a proper power, a special archæus, on which the type of its kind is impressed from the parent organism, (or is received from the special ferment;) and which has, and is capable of, all that is required for the formation of the new creature up to a certain point; but the essential form of the creature, which is one with its life, and in the higher beings is one with the perceptive mind (*anima sensitiva,*) the archæus cannot of its own power acquire. This is breathed into each individual being as the breath of life from God, as soon as by the action of the archæus in its seed it has attained a certain stage of development. And now first it possesses a form of life of its own; for hitherto it had been, in a measure, a part of another being, and had only a borrowed life. This is true not of plants and animals alone, which exhibit so distinct and determinate expressions of life, but also of the lowest creatures and even of the minerals; for though these do not propagate by seeds, yet they possess a determinate form of life, an *aura vitalis*, an archæus; for, of necessity, whatsoever is generated must have a disposer within it." (Spiess's Paraphrase, p. 11.)*

Hippocrates, **Aristotle**, and other Greek writers upon this subject, and even **Plato** and **Galen**, become more intelligible to us moderns by the 'severer abstractions' of the Hindoo sages. The Hindoos for instance boldly and fairly embody qualities, these qualities form elements of the elements; these subtle existences form atoms, or gross bodies, fire, air, ether, earth and water; but which however embodied in living beings with a cognate investure, yet retain a 'smack' of that which allied them to more celestial existences and enable us mortals to perceive. Professor H. H. **Wilson** in his comment upon the Sankhya Karika (Philosophy 4to. Oxford, 1837,) says (p. 121)—" The notion of something more subtile than the elements was not unknown to early Grecian philosophy, and **Empedocles** taught that they were compounded of some more minute matter, or of elements of the elements. Plutarch, and Stobœus, according to Cudworth understand by these rudiments of the elements primary atoms; but it may be doubted if they are to be so understood, for according to **Aristotle**, **Empedocles** held that these were not mutually transmutable. In fact the doctrine of **Empedocles** which was that of the school of **Pythagoras**, offers another analogy to the Indian, in the assertion not of four but five elements, according to Plutarch—" ether, fire, earth, water and air."

It may be suspected that something like the Hindu notion, that the senses, or their faculties, and the gross elements, partake of a common nature, is expressed in the celebrated, though otherwise not very intelligible verses of the same philosopher:

Γαίη μὲν γὰρ γαῖαν ὀπώπαμεν, ὕδατι δ' ὕδωρ
Αἰθέρι δ' αἰθὲρα δῖαν, ἀτὰρ πυρὶ πῦρ ἀΐδηλον :

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* Forbes' Journal. Brit. & For. Rev. p. 447, No. xxxii. Oct. 1843.

'By the earthly element we perceive earth; by the watery, water; the air of heaven by the aereal element; and devouring fire by the element of fire.'

That Professor Wilson is right in thus interpreting these celebrated verses we learn from ARISTOTLE,* and GALEN † too, both of whom quote them. (Conspicimus terram tellure, liquore liquorem, aere naturam aeream, ignem cernimus igne.) PLATO is quoted by ARISTOTLE as having held the same doctrine.‡ As respects the eye for instance, he says that it is made of insensible or invisible fire.§

Thus the Hindoo philosophy throws light upon the Greek; they mutually illustrate each other, as seen in the following extract from the SANKHYA which shews us more precisely the mode in which the Hindoos conceived that these combine to form man. For instance "subtile" described thus by the commentator BHASHYA, p. 123. *Subtile:* the rudimental elements, that, when aggregated, form the rudimental or subtile body, characterised by intellect (*mahat*) and the residue which always exists, and undergoes successive states of being (transmigration): those are subtile (bodies). *Such as spring from father and mother* are the cementers or means of the aggregation of gross bodies, by the effect of the mixture of blood and seminal secretion in sexual cohabitation, at fit seasons they form the envelopment of the subtile body in the womb; that subtile body then is nourished, through the umbilical cord by the nutriment derived from the food and drink received by the mother; and the (entire) body, thus commenced with the triple ingredient of the subtile rudiments, the cognate investure, and the gross elements, becomes furnished with back, belly, legs, neck, head, and the rest; is enveloped in its sixfold membranes; is provided with blood, flesh, tendons, semen, marrow, and bones; and is composed of the five gross elements; ether being supplied for its cavities (or extension), air for its growth, fire for its nutriment, water for its aggregation, and earth for its stability: and thus being equipped with all its (component) parts, it comes forth from the maternal womb. In this way there are three kinds (of bodies): which of these is constant, and which temporary, is next described. *The subtile bodies are lasting.—Subtile:* rudimental elements: these are *lasting*, constant; by them body is commenced, and migrates, according to the imperative influence of acts, through the forms of beasts, deer, birds, reptiles, or immovable substances; or, in consequence of virtue, proceeds through the heaven of Indra, and other celestial abodes. So the subtile body migrates until knowledge is attained; when that is attained, the sage, abandoning all body, acquires liberation: these sorts of bodies, or *subtile*, therefore, are called *lasting*. *Such as issue from father and mother are perishable.*—Having left that subtile body, the frame that proceeds from mother and father ceases, even here, at the time that the breath departs; the body born of parents ceases at the time of death, and merges into earth and the other gross elements."‖

"What subtile body is, and how it migrates," is next described. Any one who will be at the trouble of comparing this with PLATO's (*Timœus vel de Na-*

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* ARISTOT. op. Tom. I. p. 479.

† GAL. de HIPPOC. et PLATON. decretis lib. vii. Vol. I. p. 543.

‡ De ANIMA lib. loc. cit. § Timæus. p. 713.

‖ Professor H. H. Wilson's work before alluded to.

tura, p. 710) account of the imperative influence of acts upon the future states of being of the soul, whether translated to the stars, or transmigrating through animals, cannot fail of observing a most strong resemblance with these doctrines of the ancient Hindoos.

FŒTATION.

However we may determine such grave questions as these, whether human existence be only a number of elementary atomic lives coalescing together, as Empedocles taught; or be the operation of one only simple principle like but not identical with heat, which must expand and set the gross elements in motion, so that, 'it blows a man up like a bladder,' or like the outer crust of a cake, which seems to be the notion of Hippocrates and Aristotle, still either of these being true, would not make the wonder less wonderful. Or whether, with our modern microscopists, we build up a new being, not by atomic lives, but by atomic cells,* and by one cell inserted into another explain the origin of our existence, and its increase by these cells coalescing with others, and these again generating and multiplying other cells, till man is built up like boys build him with snow balls or sugar plums. Whether or not any of these great discoveries make the fact less marvellous, I will leave for those to determine who have more leisure than I for such speculations; and confess that whilst I admire, I cannot understand a wonder not the less wonderful for its daily occurrence. The most ancient account of it already alluded to (B.C. 1500) is I think the simplest and best, and all subsequent imitations of it are progressively worse and worse. But to recapitulate—

We know that the fœtus then can be developed in animals even where there is no womb, as well as produced exterior to it in man where there is one, but yet always requires an ovum to its production. We must examine further into the conditions of this ovum. How can the cells or ova in the human ovaria become impregnated at such a distance, and with the intervention of such a distinct gap, as exists in the course of any impregnating cause from without, for the oviduct or tube does not reach the ovary. Again, how does the disengaged ovum get to the womb when it is impregnated? Here also reference to animals assists the explanation, for we see that in some the two cornua of the womb like Fallopian tubes are spread out on either side to the ovaria. In one instance (No. 590), they have thus grasped the ovary, full of germs, (like a bunch of grapes) and one of them is so nearly advanced to the surface of the ovarium, as to be ready to fall into the adhering end or fimbria of the oviduct or tube, which is spread out like a hand ready to grasp it. It is not however retained in the fimbriæ or fingers of the hand, but passes as it were *down the sleeve*, or tube or cornu. The bristle points out the course which it would take to the womb. Still more distinctly is this indicated in No. 176, where both cornua are full of fœtuses, (of the rat,) whilst in the uterus of the deer, (No. 324,) these parts are *distinctly* and *separately* seen. In the human ovarium and tube (No. 206) this is well illustrated, the adhering fimbria, the empty cell, and the open passage to the womb along the Fallopian tube are beautifully shewn.

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* Forbes' Jour. January 1843; p. 265, also Oct. 1843, p. 519; see also Edin. Med. Surg. Journ. Vol. LV. p. 484, as follows.

"It may be premised that Schwann, basing his researches in the animal upon the discoveries of Schleiden in the vegetable kingdom, had demonstrated that in development the same phenomena are exhibited in both; that animal tissues in general, like those of plants, are reducible to modifications of vesicles or cells; and that the mode of origin of the cells is essentially the same in animals as Schleiden had discovered it to be in plants. Dr. Barry's observations, then, upon this fundamental principle, may be stated to be as follows. The germinal vesicle is the essential portion of the ovum. The germinal vesicle becomes filled with cells, and these again become filled with the foundation of other cells, and the vesicle is rendered opaque. The germinal spot always presents at a certain period after impregnation a dark point in its centre. This point is soon found to contain a cavity filled with pellucid fluid. The free portion of the spot resolves itself into cells, and the foundation of other cells come into view in its anterior, arranged in layers around the central cavity. "Every other nucleus met with in these researches, has seemed to be the seat of changes essentially the same. The germinal spot, therefore, is the point of fecundation. In proof of which there arise at this part two cells, which constitute the foundation of the new being." Each of the succeeding twin cells presents a nucleus, which, having first passed to the centre of its cell, resolves itself into cells in the manner above described. "By this means the twin cells in their turn become filled with other cells. Only two of these in each twin cell being destined to continue, the others, as well as the membrane of each parent cell, disappear by liquefaction, when four cells remain. These four produce eight, and so on, until the germ consists of a mulberry-like object, the cells of which do not admit of being counted." The same process as that described is followed up in every minute cell. "Every cell, however minute, if its interior can be discerned, is found filled with the foundations of new cells, into which its nucleus has been resolved."

We follow out therefore the conditions of generation in man thus. First, an *ovarium* is wanted to prepare an OVUM or recipient cell, this is female—second, an organ (the testis) to prepare a *gendering germ*—and this is male. The insertion or impregnation of the female ovum by the male germ, is that act of generation in which both male and female unite, and which is called coitus, copulation, or sexual intercourse. This act, physiologically considered, is the making one continuous common canal of the generative organs of each sex; in order to secure the transfer of the male germ to the female: that is, from the testis of the male, through all the long tortuous windings of its *epididymis*, and *vas deferens* and the *urethra* of the *penis*:—through the *vagina* or sheath of the female;—(the recipient of the male organ, which contracts around it by its proper muscular apparatus)—through the *womb* which hardly exceeds the male urethra in capacity, through the *Fallopian* tube which grasps the ovary and receives the ovum, upon which, and into which, is injected and insinuated the semen of the male, as by a forcing pump.*

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* The *manner* of searching out the subject has little that is commendable in some instances, and for the fame of Hippocrates I hope that the book "*De* Natura Pueri" may not have him for its author. Indeed Galen, who repeats the story with little variation, speaks doubtfully as to the authorship, perhaps somewhat unwilling to admit anything so derogatory to the fame of the father of medicine as is contained in the story of the "*cantrix*"—"Ego vero quum audissem; iussi ipsam ad terram saltare, et post quam septies iam exiliisset, genitura in terram profluxit, et strepitus factus est, atque illa conspecta ipsa admirata est." *Hippocratis Liber De Natura Pueri* (*fol.* 35.) Lugdun. 1564. Again, such cruelty as this can hardly be defended. "J. Hunterus canis feminæ inter cœundum occisœ, uterum aperuit; quo facto maris semen in ipsum uterum, per saltus intromissum clare vidit." The experiments of BISCHOFF are even more cruel, and I know not how they can be justified. See Forbes's British and Foreign Medical Review, vol. xvi. (p. 556.) In one thing they have done service to humanity by nullifying the presumptive proofs of loss of virginity—for the ovum is thrown off in the unimpregnated as well as the impregnated female. The corpora lutea following in either case. (Home Lect. Anat. vol. ii. p. 294.)

DEVELOPEMENT OF THE HUMAN OVUM.

When once the impregnation of the ovum is effected, it then becomes possessed of an independent principle of vitality.* It is not necessary, that it should even enter the womb in order to its full developement in the state of fœtal life. Without such a domicile as that, we see it go through all the various conditions of its existence. As a grub which is its first condition, it is shewn in one preparation as big as a mustard seed. (No. 210.) In another it is increased in size, to the full blown dignity of a maggot (No. 521.) In a third, it has had a still greater developement, and might assert equality with a minute tadpole; equalling two peas in its wide dimensions ; and it is even now in this amphibious state, progressing to a further change or transition, for under the delicate transparent skin the rudiments of the future limbs are plainly visible. The eye also, that beautiful instrument for acquiring knowledge, and the mouth so important to convey it to others, are even now discerned. But the head not yet, "entering on studious thoughts abstruse," hangs downwards, unconscious of his high prerogative as man

> "Pronaque cum spectent animalia cœtera terram ;
> Os homini sublime dedit, cœlumque tueri
> Jussit, et erectos ad sydera tollere vultus."

Nor is that foreknowledge and provision for future states of being, which we have now seen, confined to the human race alone. In one place we see the bat folding at his side his 'limber fans for wings,' while yet a prisoner in his mother's womb. The duckling within his shell, has got his beak, his oary-feet, and rudimental pinions. Even the rat, the ridiculus mus, is provided for after his kind. These wonderful instances of design prove beyond all doubt that there must have been a designer. PLATO refers this to divine intelligence foreseeing the wants and conveniences of the future being.† And GALEN has clearly and nobly expresssd this deduction, made stronger by reflecting upon the symmetry of parts.‡

But that the fœtus may be fully developed outside the womb, even to those very organs of generation, which might have made it, in after life, a prolific parent of others, is seen in No. 582, which was taken from the Fallopian tube, having never reached the womb (see case.) In other instances it never gets further than the ovary itself. In one instance it had reached the womb, but further than the outside walls it never got, yet even here it could attach itself and grow.

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* See preparation No. 5—1 and the following case.

† Cujus quidem accessoria ministraque causa in iis qua diximus constitit ; principalis autem causa in ea intelligentia quæ id futuræ commoditatis gratia fabricavit. Quod enim ex viris quandoq. mulieres et ceteræ animantes erant futuræ nostri illi opifices non ignorabant, quinetia quod unguium usum bestiæ quoq. multæ ad opera multa erant habituræ intelligebant. Quapropter homines statim genitos unguibus armaverunt," &c.
PLATONIS Op. Liber xxxi. Timæus Vel De Natura, vol. i. p. 726.

‡ Quemadmodu igit, de humanis affectionib. judicia facimus ; sic etiam de divinis facere debemus, ac corporis nostri conditorem qualiscunq. deus ille fuerit, admirari, Quod si q. propterea ipsum non videmus, non esse etiam dicamus, similitudinem judicii in artibus minime servabimus ; ubi non penes visionem ejus qui extruxisset vel navim, vel lectum, iudiciu. artis proferebamus praetermissa utilitatis singularum partium consideratione ; sed in hac vel prœcipuam uim artis esse statuebamus. Quemadmodum enim ridiculum est, siquis eo q. videat aliquem quippiam fabricantem, iccirco artifice existimet, etiam si partes aliquas male fabricatas fuisse deprehenderit ; sic cum optime constructam navim, vel domum, vel lecticam conspexeris, licet ignores, quis ea condiderit,

It follows therefore that, however essential to conception in man, or to the wonderful phenomena of his birth, the uterus is not necessary to the formation of the fœtus, as was so long and so generally supposed. A glance at the generation of animals may assist us in comprehending this. In the serpent (Python tygris) we see that in the egg (No. 237,) the animal is perfectly developed. Here therefore was no need of an uterus, for the egg had only to be expelled, covered by its natural membrane in order to be hatched by the genial warmth of a tropical sun. The same is seen in the ova of the cobra snake (No. 124.) Again we see that birds

> " Their brood as numerous hatch, from the egg that soon
> " Bursting with kindly rupture, forth disclosed
> " Their callow young."

Thus the nutrition and growth of the chick is shewn in No. 385 to be quite independent of an uterus. It is all derived from the egg itself. A mass like the placenta is seen to receive the umbilical vessels, and this placental mass, communicates with the membrane spread inside the shell ; whence heat and air may be derived. The ovum therefore being so perfectly independent of an uterus in most animals as well as man, and being also occasionally perfected exterior to it, must be the most essential of all the parts of generation in man also ; *and it is so*, for even the worm (No. 707) hermaphrodite though it be, is generated by the union of male and female germs, and even the most minute animalculæ, the *infusoria*, appear to have a similar origin, in ova.*

THE UTERUS.

If the uterus be not essential to the developement of a full-grown fœtus even, we may well ask what is the use of it—and the answer is plainly this, that on the one hand it is essential to the transmission of the male fecundating germ, and on the other hand it is periodically developed for the birth of a living child.

In No. 596 (the unimpregnated uterus) the vagina is seen full of rugæ, and these have in the uterus itself a symmetrical arrangement, which has been here named *arbor vitæ*, with quite as much propriety as elsewhere. It contrasts with the open structure of the uterus after child-birth in No. 174, in which the large sized vessels still remain, whilst all the rugose folds of the vagina have disappeared. In No. 204 the uterus is seen not larger than an ovary, and the ovaries themselves, though very small, have yet two or three germs well advanced in each. This would lead us to conclude, that before the female is in other respects nubile, menstruation may take place,

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si absq. arte, sed fortuna extitisse ea omnia existimes, merito eris deridendus ; quippe cum artem raro fine suo frustrari, fortunam raro eundem assequi, nemo sit qui nesciat. Quocirca temerariam ac fortuitam, neq. artificialem causam fabricæ nostri corporis existimare absurdum est ; si modo similitudinem judicii in artificibus qui cernuntur, et qui non videntur, servare voluerimus.

Gal. De Hippoc. et Platonis Decretis Liber ix. (p. 571.)

* Home Lect. Anat. Comp. vol. ii. p 413, see also Obs. Microscop. Animalcul. by J. A. C. Corda. Prague, " The destination of these two openings was long for me a matter of doubt, till I could at last distinguish the junction of the closterium acuminatum, in which two animalcules (fig. 59,) placed themselves obliquely one against the other, and till I saw, through these openings, the exchange of a transparent and scarcely perceptible fluid," (p. 115).—*Essay on the Mineral Water of Carlsbad.*

if this depend upon the presence of germs. But how wonderful is the change which occurs when it has received an impregnated ovum. It grows with its growth, and strengthens with the increase of what it has to support ; not dilating only, like a distended bladder, although its capacity is so widely increased, that at the full term it fills the whole abdomen, but its walls, its vessels, its nerves, and muscular structure, all grow together ; until the walls alone are thick as the whole unimpregnated organ, (as seen in the uterus No. 603.) But this perhaps is not so marvellous as its decrease, after it has fulfilled its office of expelling the fœtus. What becomes of this huge hill of flesh, which in a few months has returned to its original size (as seen in 174?) Its arteries, veins, nerves and flesh have disappeared, leaving an organ twenty-four times less in size than it had been.

Here is a thing unknown in any other organ, quite inexplicable. We never see the eye growing by an increase of one score times or so, and even had we seen such a thing, we would never expect it to again return to its usual size and condition, and yet this happens ten or twenty times to the womb, in the course of a single life-time. In the preparations Nos. 520, 642, 521 to No. 603, the gradual developement of fœtus, membranes and womb *together*, are seen ; from this point its decrease may be observed. And the very first preparation declares plainly for what purpose there is this periodical creation of such a powerful organ, *and that it is specially designed for the birth of the living child*, which it seems to be impossible otherwise to effect. This great function assigned to it, it will perform even after the death of the mother. I have seen it, in the case where I resorted to the Cæsarian section, in the act of expelling the placenta and membranes nearly two hours after the mother's death. The power of this organ is almost incredible. Who could believe it, had they not seen it, that a fine grown European child could be forced through the natural passages, when doubled ! (as was the case in No. 678.) Who could imagine that all the difficulties, all the natural obstacles to the birth of an European child may be overcome in five minutes. But this also I have seen effected, in India, and with perfect safety to both mother and child. This safety is however greatly influenced by another provision which will be hereafter noticed.

In England I have seen a breech presentation endanger the life of mother and child too ; whilst in India I have seen without any assistance both mother and child do well in no less than four instances. On the other hand the injudicious interference of a midwife has proved injurious to the mother and fatal to the infant on several ocasions within my recollection in India.

The following observations by Dr. C. Bell are peculiarly valuable.* "The remarkable property which the uterus possesses of retaining its integrity during disease in other organs, seems to be one of those wise provisions of the great Author of our being for the preservation of the species, of which we have so many instances in both the animal and vegetable kingdoms. Indeed, if the womb were not thus possessed, as it were, of an independent existence, with all its irritability, it would be liable to be influenced by every serious morbid condition of the system, and the all-important function of generation would be exposed to so many checks and interruptions, that it would be a miracle if any woman attained the full term of pregnancy. But fortunately this is not the case, and miscarriage, though it too frequently produces injury to the general health, principally results from the condition of the womb itself, and excitement of the sexual* organs, or from a morbid condition of the fœtus."† One of the membranes which envelope the fœtus may be noticed also in this place as it is ably illustrated by Dr. C. BELL.

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* Edin. Med. Surg. Journ. July, 1844, p. 12.

In treating of the internal surface of the uterus, Dr. Hunter says, "As to the internal surface of the uterus itself, this is a complex subject which I do not know well how to make plain. *It comes away with the secundines*, and how we cannot rightly conceive of, till we know a little of their nature."‡ Again, when treating of the membranes of the gravid. uterus, he says, "I would just observe, that, besides these three which some call the amnion, and the true and false chorion, or as I call them, amnion, chorion, and decidua, which decidua you will afterwards find to be the *internal lamella of the uterus*;" (ibid, p. 46.) When treating of the *membrana caduca*, he farther supports this opinion in the following words: "Now then, gentlemen, as this is such a fleshy, opaque membrane, the only question that remains is this, viz. whether it is the external involucrum of the ovum, or the *internal membrane of the uterus?* If it is the external involucrum of the ovum it certainly has vessels from the uterus, because we always inject it from the uterus, and this looks as if it was the *internal lamella of the uterus.* It may be that the vessels from the uterus are elongated, but we cannot get women and open them in two days, and then in six days after they are pregnant, therefore we cannot determine from thence absolutely. If it was the outer covering of the fœtus, the Fallopian tubes and *os tincæ* would both come only to the outside; but as it is the reverse, and they lead to the inside, from this, and its being vascular from the uterus, *it is very plainly the internal membrane of the uterus. Every time a woman conceives, and every time she throws off that conception, the membrane exfoliates from the uterus. It falls off as a stag's horn or bird's feather, when they shade.*" In alluding to this subject in his treatise on the Anatomy of the Gravid. Uterus, Dr. Hunter informs us that "the remains of the decidua have been melted down and passed off with the lochia, so that the fasciculated stratum of muscular fibres appear to be bare, and to make the internal surface of the uterus." In another passage, when treating of the *musculus orbicularis* in a woman who died in the ninth month of pregnancy, he says, "I found it every where covered by a thin stratum of the decidua, through which the muscular fibres appeared, but with some degree of obscurity; upon rubbing off the under membrane with a cloth, it gave me pleasure to see how exactly the above description agreed with appearances."

Much new and valuable information has been added to our knowledge of the nature and constitution of this membrane by recent microscopic investigation. When examined through the microscope it appears not less distinct from the lining membrane of the vagina in its minute structure than in its general character. It is found to be numerously supplied with tubular glands, from which the secretions are observed to flow in great profusion, especially in the early months of pregnancy, when they have a thick whitish appearance,* and it is covered by a fine layer of epithelium, which is of columnar form, and ciliated from the fundus to the middle of the cervix, thus differing from that membrane covering the vagina and the lower part of the cervix, which is squamous.† " Again he says—

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* This opinion receives some support from the researches of Duchatelet, who informs us that miscarriages are common at the end of the first month among prostitutes.—Duchatelet on Prostitution in Paris, Vol. i. p. 276.

† Dr. Simpson, Professor of Midwifery, in a valuable paper published in the Ed. Med. Jour. for Oct. 1839, has given several interesting cases of abortion, which were apparently the result of inflammation of the peritoneum in the fœtus.

‡ MSS. Notes of Lectures on Anatomy and Surgery in Library of Royal College of Physicians, Lect. I. Gravid. Uterus.

" Dr. Sharpey found it in some places one-tenth of an inch in thickness, and obviously consisting of the *thickened mucous membrane of the uterus.* " Its surface presented a multitude of small round apertures, (thus corresponding with the description of the internal surface of the uterus of the older writers,) which, on a vertical section, were seen to belong to the tubular glands of the mucous membrane elongated and enlarged. These tubes were lined with white epithelium, which rendered them very conspicuous ; they were much waved and contorted towards their deep and, doubtless, closed extremity, and, at various parts, they appeared to be implanted at some depth in the tissue of the uterus." From these, and other observations of a similar kind, he was led to conclude that the apertures on the decidua, which give that membrane its cribriform character, are merely "the openings of the glands of the lining membrane of the uterus, which *is really converted into the decidua, and discharged from the uterus at parturition.*" He likewise points out in a very satisfactory manner, that this membrane differs materially from the *decidua reflexa*, which has no apertures on its surface, except just at the angle of reflexion from the *decidua vera.* He verified these observations by comparative anatomy, and they are still further supported by the investigations of Weber.‡

" By establishing these facts with regard to this membrane, we shall not only confirm the views I have advocated in reference to the true seat of the catamenial discharge, but it will go far to explain the cause of some of the functional diseases, with regard to the nature of which we have hitherto been totally in the dark."§

MENSTRUATION.

Previously to considering the further provision for birth, we will, before leaving the womb itself, speak briefly of its menstrual function. Dr. C. Bell says—

" The theory which is now generally entertained with regard to the catamenial discharge is, that it is a regular and distinct secretion. The merit of having first suggested this explanation of the subject belongs to John Hunter ; although claimed by Bordeu and Saunders. Mr. Hunter had his mind drawn to this subject while investigating the principles of the blood, when he observed that the catamenial discharge did not coagulate. This circumstance particularly arrested his attention, and he alludes to it in the following words :—" In healthy menstruation the blood which is discharged does not coagulate ; in irregular or unhealthy it does. The healthy menses, therefore, show a peculiar action of the constitution, and it is most probably in this action that their salubrious purposes consist ; for if twice the usual quantity is evacuated with the power of coagulation even from the same vessels, the same benefit is not produced, much less when taken away from another part by art."* This important fact completely sets at rest the question of the plethoric theories, as well as the rupture of the uterine vessels. In another passage, in which he seems to have a doubt of his views being correct, he says, " The blood of the menses when it comes down to the mouth of the vagina is as dark as venal blood ; and as it does not coagulate it has exactly the appearance of the blood in those where the blood continues fluid. Whether this arises from its being venal blood, or from its acquiring that colour after extravasation,—by its slow motion, it is not easy to determine ; but upon being exposed it becomes florid ; it is naturally of a dark colour, but rather muddy, not having the transparency which pure blood has. Whether this arises from its mixing with the mucus of the vagina, or from the cessation of life in it, I will not pretend to say, The red globules, however, are not dissolved, they retain their figure."† It was not until he had investigated the matter still farther that he declared his opinion that this discharge was a natural secretion, and he thus expresses his idea of the matter. " In a natural evacuation of blood, viz. menstruation, it is neither similar to blood taken from a vein of the same person, nor to that which is extravasated by accident in any other part of the same person, nor to that which is extravasated by accident in any other part of the body, but is a species of blood changed, separated, or thrown off from the common mass by an action of the vessels of the uterus similar to that of secretion, by which action the blood loses the principle of coagulation, and, I suppose, of life."‡

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* Muller's Physiology, Vol. ii. p. 1574. This fact is also noticed in Astruc, and several of the older authors.

† Cruveilhier's Anatomy, Library of Medicine, Vol. vii. p. 623.

‡ Muller's Physiology, Vol. ii. p. 1574.

§ Edin. Med. Surg. Journ. Oct. 1844, p. 317.

The immediate seat of the catamenial discharge has also been a fertile subject of controversy among authors from a very early period ; and even yet the question is far from being completely settled. Some authors have asserted that it flows from the cervix ;§ others from the *fundus uteri* only ;|| a third with equal confidence informs us that it is thrown off conjointly by the uterus and vagina,¶ or entirely by the latter organ during pregnancy ; whilst a fourth class affirms that its source is in the ovaries. Dr. Raciborski imagines, along with Dr. Power,** that there is a very intimate connection between the catamenia and Graafian vesicles, because the discharge begins when these have attained their developement and ceases when they become effete. He asserts that each menstrual period a vesicle swells and projects from the ovary, from which it escapes by rupture of its sac about the end of the menstrual period, without any influence of the male. That the cavity left by this vesicle has the same characters as the *corpus luteum* formed after conception. That disease arrests the developement of these vesicles, and that this is the true cause of amenorrhœa in many cases. That a similar developement

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* Palmer's edition of Hunter's Works, Vol. iii. p. 35.

† Op. cit. p. 85.

‡ Ibid, p. 115.

§ Columbus and Primrose.

|| Spigelius, Op. cit. ; Mauriceau, p. 8 ; Lettre Histoire de l'Academie Royal de Science, 1820, p. 20.

¶ Burdach, p. 285 ; Desormeau, Dict. de Med. Tome xiv. p. 145 ; Velpeau, Tome i. p. 182 ; Forbes' British and Foreign Review, No. 7 ; Dewee's Midwifery, p. 118, eighth edition : Mayo, Physiol., third edition, p. 371 ; Astruc. Eng. Trans. Vol. i. p. 16.

** His Essay on the Periodical Discharge in the Human Female, 1832.

and discharge of the Graafian vesicles take place in the lower animals during the rutting season without contact of the male, and hence that this period is the most favourable for impregnation in all animals, as near the time of menstruation is in women, especially the end of it."* Dr. C. **Bell** continues—

"In the healthy female the catamenial discharge is thrown off every four weeks, and, with such regularity in some women, that they can reckon to within an hour of its return. This is a law which once established, seems to regulate all the operations of the uterus; hence we find that parturition usually is considered to come on at a menstrual period. But why this law should limit the return, in general, of the menses to every twenty-eight days has puzzled all who have written on the subject, and it is likely to continue to do so unless it may be explained on the principles so clearly laid down by Mr. Goodsir,* as regulating other secretions. Mr. Goodsir proves in the most satisfactory manner that secretion takes place on free surfaces, from nucleated cells, which burst when they attain a certain state of developement. Are we not justified, therefore, in thinking that the interval between the return of the catamenia is merely the period required for the ripening of these secreting cells in the lining membrane of the uterus ?"

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* I transcribe his opinions upon OBSTETRICAL PATHOLOGY. They are further elucidated in the Brit. and For. Med. Rev. Jan. 7, 1845, p. 90.

On the Periodical Deposition of Ova by Women and the Females of the Mammalia. By M. Raciborski. (*L'Experience*, November and December, 1843.)—In a series of most interesting papers, M. Raciborski proves that women and the females of all the mammalia throw off, at particular periods, ova, which may be detected in the oviduct, (Fallopian tubes). The period at which this takes place in animals is known by the name of the rutting season: in woman it occurs every time when she menstruates. By tracing the character of the Fallopian tubes and of the ovaries through the races of animals, he was able to show that these tubes are truly oviducts, and were similar in function to the oviducts of birds. In the course of his inquiry, and as the result of numerous dissections, he distinctly proved, as Bischoff of Heidelberg had also done, that, during the period of menstruation in women, and of rutting in the mammalia, ova became developed in the ovaries, just as happens in fishes or birds, and are thrown off at that period. In uniparous females only one ovum is so developed; in those who are multiparous several ova are thrown into the Fallopian tubes or oviducts. This takes place independent of fecundation. In fact, fecundation only vivifies the ovum which is thrown off, in the same way as occurs in birds. Provided the male semen reach the ovum before it has reached the uterus, impregnation takes place; but if there be no fecundation, as occurs in all virgins, and in animals which have not access to males, the ovum is thrown off, (or laid,) as he terms it, in the same way as we see the unfecundated ovum of birds or fishes laid.

The Graafian vesicles are minutely traced through all their periods of change, from the time when they appear in the interior of the ovary, until they gradually approach the surface of that organ, ready to be thrown off at the period of rutting or of menstruation. As they approach the surface in animals, each is seen to be composed of a vesicle filled with a tolerably limpid viscous fluid, of a somewhat yellow tinge. The walls of this vesicle are formed of four membranes—the peritoneum and covering proper of the ovary forming two of them, and only cover its projecting surface. The third tunic is the most important, forming the membrane proper of the Graafian vesicle. It forms a completely closed vesicle, and encloses numerous vessels. Its internal surface is free, slightly tomatose, and is in contact with a granular fluid. It adheres to the two first coats by loose cellular tissue. The fourth coat is a cellular one, which envelopes the last described membrane on all sides, excepting on its upper projecting one, where it is covered by the two first coats. These coats are all closely applied to one another, and leave no space or fluid between them. As the period of rutting or of menstruation approaches, the most superficial vesicles augment considerably in volume, lose their diaphanous appearance, on account of the increased thickness of the third or membrane proper of the vesicle. At the same time, the liquid becomes more granular than before. At the rutting or menstrual period congestion takes place, and often hæmorrhage, within the interior of the vesicle. If cut into at this period, the vesicles give out a bloody-coloured fluid, floating in which may often be distinguished the ovum proper. In a few days after the rutting or menstruation has commenced, if the female be kept carefully from the male, the vesicle bursts and evacuates its contents. If examined a few days after this, a slight cleft aperture may be distinguished on the surface, but the edges are already re-united. The pouch of the follicle is then seen sensibly diminished in size, and often contains a few small clots of blood.

Upon this subject the following paper by my worthy colleague, Baboo Modusoodun Gupta, will be read with interest.

ON MENSTRUATION AMONG HINDU FEMALES.

At the request of my friend, Dr. Webb, I have the pleasure to forward the testimony afforded by our most authoritative ancient writers upon this subject, and also the result of my own observations.

1st.—**Sushruta** says :—" The menstrual discharge begins after the twelfth and ceases after the fiftieth year. The discharge returns every month and lasts for three days."†

Again **Sushruta** says, " If a man under twenty-five deposit his germ (*garbha*) in a woman younger than sixteen, it will (most likely) die in

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The changes which this pouch undergoes is one of the most curious of all these phenomena. After the rupture of the follicle the external or fibrous coat contracts, and folds up irregularly this membranous proper tunic of the follicle. It then resembles a bladder pushed into a cavity much less than itself. The sides are pressed irregularly one against the other ; and as they at length adhere by their appressed surfaces, a fleshy mass is found occupying the space of the former Graafian vesicle. This mass presents then the colour and consistence of the liver, and when incised, presents a ragged aspect, produced by the change just described. In some cases, the internal cavity is not quite obliterated, on account of a few of the clots still remaining. These fleshy masses may be easily drawn out of their situation by a pair of forceps, exactly in the same way as the internal membrane of the vesicle might have been before the menstrual or rutting period took place.

In proportion to the time which has elapsed since the rutting period, and in proportion as new Graafian vesicles approach the surface of the ovary, the fleshy masses above described diminish in volume, and assume a fawn colour, or that of a decayed leaf. The ragged aspect on a section is not so distinct ; they become deeper and deeper placed in the ovary, and are at last only met with as small fawn-coloured tubercles. These diminish more and more, till first only a fawn-coloured speck is seen, and then they disappear.

In the course of the long series of papers which M. Raciborski has published on this subject, are cited very numerous cases, in which all the facts mentioned were observed on the bodies of women who died during or immediately after or before menstruation, and in the females of animals at the rutting period. They fully bear out M. Raciborski in the view he has adopted, viz., that in uniparous animals one ovum, and in multiparous animals several ova, are developed every time the animal comes into heat, and are thrown off independently altogether of the animal having access to the male ; that the same occurs in women every time they menstruate ; that Graafian vesicles, therefore, are to be found in the ovary whenever the animal is at the rutting season, or when women are menstruating, and that *corpora lutea* follow the bursting of the vesicles in every case. Neither the presence of corpora lutea, nor of Graafian vesicles in the ovaries, are, therefore, any proof of the loss of virginity, or of a female having had access to the male. Nothing but the presence of a fecundated ovum in the uterus can prove this.

* See his paper in the Transactions of the Royal Society of Edinburgh, 1842.

† सुश्रुतः।—रसादेव रजः स्त्रीणां मासि मासि त्र्यहं स्रवत्। तद्वर्षाद्द्वादशादूर्द्ध्वं याति पंचाशतः क्षयं॥

the womb. Even if it be born alive it will either soon die, or he will be imbecile and weakly so long as he lives."*

2ND.—ANGIRA, one of the Hindu lawgivers, says, " that females are called *Gouree* when they are eight years old ; they are called *Rohinee* at the ninth year ; *Kangaka* at the tenth year ; and after the tenth they are called *Rajaswala*, or a female with menses."†

3RD.—ATRI and KASYAPA (Hindu sages) state, that if an unmarried girl discharges the menstrual fluid at her father's house, the father incurs a guilt similar to that of destroying a fœtus, and the daughter becomes *Brisalee*, or degraded in rank.‡

I find it enjoined in the Hindu Shastras, that females should be given in marriage before their first menstrual discharge, and that should marriage not take place until after this event, the marriage is regarded in a sinful light.

According to my own observation, the females of this country generally arrive at the age of puberty (or womanhood) after the twelfth year, when they are fit for all the purposes of marriage. I think our celebrated MANU very judiciously fixed the time of marriage of females at twelve with men of thirty years old.§ Most of the females of this country begin to menstruate after the twelfth year or at the beginning of the thirteenth, and it continues till the fortieth in some cases forty-fifth. At the age of ten years it is very uncommon, and it is perhaps equally rare for it to be delayed beyond the thirteenth year. When the discharge takes place it lasts for three or four days.

As a general result of my investigation, I do not find that menstruation occurs at so early an age as ten years in more than one or two instances out of a hundred females. I beg to observe that it is a very easy matter for native practitioners to ascertain the actual epoch of a first menstruation, since it is the custom, among Hindus, to publicly notify to all the relations and guardians of the female, the important fact of menstruation, and celebrate it by certain ceremonies and religious rites called—Punur Bibaha, or second marriage.

It is the custom of the country, in our early marriages, to send the girl at perhaps nine years, occasionally to the house of her husband, but if the husband be so distant that this cannot be done, menstruation is generally delayed till the thirteenth year.

I have been informed by several women, that when the menstrual flux begins as early as the eleventh or twelfth year, it does not in many cases recur for a year after this first appearance, but after that period, the secretion again takes its natural course. It may therefore be fairly questioned whether or not this, which is supposed by them to be a first appearance, may not be rather a first copulation, and the result of a ruptured hymen.

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* ऊणषोडश वर्षायाम प्राप्तःपंच विंशतिं। यद्याधत्ते पुमान् गर्भः कुक्षिस्थः स विपद्यते जातो वा नचिरं जीवेज्जीवेद्वा विकलेन्द्रियः।

† अंगिरा।—अष्टवर्षा भवद्गौरी नववर्षा तु रोहिणी। दशमे कन्यका प्रोक्ता अतऊर्द्धं रजस्वला॥

‡ अत्रिकाश्यपौ =पितुर्गेहे तु या कन्या रजः पश्यत्यसंस्कृता। भ्रूणहत्या पितुस्तस्याः सा कन्या वृषली स्मृता॥

§ मनुः।—त्रिंशद्वर्षा वहेत् कन्यां हृद्यां द्वादशवार्षिकीं। अष्टवर्षाऽष्टवर्षां वा धर्मे सीदति सत्वरः॥

They also mention that females occasionally become pregnant immediately after this first menstruation. I believe that the catamenia appear sooner or later according to the mode of living of the females, and the sexual excitement to which they may be subjected, as I find the first menstruation of girls of good circumstances generally takes place when they are eleven years old, even in some cases at ten years. I never observed a female of indigent circumstances to menstruate earlier than the age of twelve years.

Agreeably to the form furnished me by Dr. Webb, I have the pleasure to annex the accompanying

TABLE OF MENSTRUATION AMONG HINDOO WOMEN.

Names.*	The age at first menstruation.	First pregnancy.	The age at present.	Names.	The age at first menstruation.	First pregnancy.	The age at present.	Names.	The age at first menstruation.	First pregnancy.	The age at present.
1	13	13	25	14	13	14	21	27	12	14	20
2	13	—	32	15	13	14	15	28	12	14	21
3	12	14	21	16	12	—	—	29	13	14	30
4	13	—	30	17	12	—	—	30	13	15	28
5	13	—	—	18	12	—	—	31	11	11	14
6	13	16	22	19	13	18	—	32	13	14	25
7	11	14	21	20	12	14	15	33	13	15	30
8	12	12	17	21	12	—	—	34	12	—	—
9	13	14	—	22	12	—	—	35	12	14	24
10	12	13	—	23	13	—	—	36	12	—	—
11	11	11	—	24	13	—	26	37	12	15	—
12	13	14	—	25	12	14	30	—	—	—	—
13	13	14	—	26	12	15	30	—	—	—	—

INSTANCES OF MENSTRUATION LATE IN LIFE.†

1	Gopi Mohun Dey's aged wife	60
‡2	Madhub Ram Bose's wife	50
3	Gour Mohun Das's wife	65
‡4	Kissub Ram Bose's servant	67
‡5	Ramcoomar Mittra's wife	68
‡6	Kassynath Ghose's wife	64
7	Binda Bun Ghose's mother	58
8	Nimychurn Bose's wife	56
9	Ram Narain Sircar's wife	57
‡10	Deby Kisto Dutt's wife	59
‡11	Boli Ram Bose's wife	56
12	Soroop Ghose's mother	80
‡13	Shoobhul Taly's mother	63

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* The Babu was kind enough to shew me the names but did not wish them to be published.

† These instances were furnished by Dwarikanauth Das Bosu, student of the College, now on his way to England.

‡ These continue to menstruate.

OF THE PLACENTA AND MEMBRANES.

The membranes which appertain especially to the fœtus, are larger in proportion, to the early state of the fœtus, as seen in Nos. 210, 521, 171. It is probable that the increased quantity of fluid which they contain at this time contributes to the safety of the tender embryo which floats in it. Their strength and consistence varies much at different periods, being in the first three months very thick, soft and vascular, as seen in the decidua-reflexa of Nos. 520, 521, which afterwards becomes as pellucid and transparent as in No. 171. In No. 173 we see the placenta fully developed as a thick fleshy mass as thick as the hand, occupying nearly half of the circumference of the cavity and full of large vessels, which combine to form the umbilical cord. By this the blood passes to and fro, between the mother and child. It is usually implanted at the upper part of the womb. They are beginning to collect for this purpose in No. 520, whilst the further course of the vessels in the child are seen in No. 172. When there are two children we see in No. 523, that there are two separate umbilical cords, and two distinct sacs, one for each child.

That the membranes are essential to the life of the fœtus we infer from the fact of their rupture being in almost all cases followed by the expulsion of the child. Indeed the people in the bazaars of India who follow the disreputable profession of *abortionists*, depend chiefly upon this method of puncture, although they occasionally succeed in their infamous aim upon the life of the fœtus by drugs alone. It unfortunately happens, that there are no post-mortem records in the Medical Register, forwarded to me from the Midwifery Hospital, (for Native women) attached to our Medical College. But I have been assured that many women come in, and die there from inflammation of the womb and Fallopian tubes, the consequence of this shocking violation of nature's strongest law.

It were well if such odious practices were unknown in more civilized countries. Upon what possible principle can any woman using them be called a lady? The following case shows, however, that the term has been so misapplied ; but what is of more consequence it shows that the most severe injury to the womb itself, will not effect abortion whilst the membranes remain entire : and as it illustrates also a part of the evils which follow such barbarity, I will quote it from the *New York Journal of Medicine* for March, 1844, and then dismiss such humiliating records of human depravity :—

" Dr. Bedford was called in consultation with several other practitioners to a lady who had been in violent labour for 24 hours, which had not however, caused the slightest progress in the delivery. Her sufferings were of the most intense nature, so much so that her cries had attracted a crowd of persons around the door. She had previously had two children, and her labours were described to have been easy. On examination, a solid resisting tumour, evidently the child's head, was felt at the upper strait of the pelvis, through the walls of the strongly contracting uterus, but no *os uteri* could be detected. In carrying the finger upwards and backwards towards the *cul de sac* of the vagina two fleshy bridles were discovered, extending from that portion of the vagina to a point of the uterus, where some roughness was perceived, but no aperture. Between the bridles and this rough point distinct cicatrices were felt, of which this rough surface was one. On closely questioning her as to whether she had ever sustained any injury, she confessed that, on five previous occasions when she felt herself pregnant, she had applied to a quack, who gave her powders which produced miscarriage, but that on this occasion the powders had failed. She again applied to the quack, who proposed to "probe" her; but as a sum was demanded for this operation above what she could afford to pay, she attempted to probe herself. She used a whalebone probe several times, which produced considerable pain, followed by a discharge of blood. It was thus apparent that the present state of matters had been produced by violence inflicted on the mouth and neck of the uterus. It was therefore resolved to incise the womb in the most depending part. A probe-pointed bistoury, covered with linen to within four lines of its point, was therefore carried into the vagina along the finger, introduced into the uterus, where the roughness was detected, and carried first to the right and then to the left. As it was however feared that this aperture would not be sufficient, an incision was also carried through the posterior lip. The uterus contracting violently, rapidly dilated the aperture thus made, and in ten minutes a living child was born. The patient recovered rapidly, without one untoward symptom."

The following are some of the methods practised to produce

ABORTION IN INDIA.

(Communicated by an intelligent student of the Calcutta Medical College.)

Assafœtida, lal chitra root, ginger, garlic, long pepper, } mixed and made into pulp, to be taken internally. After an hour, shampooing of the belly and lower part of abdomen, as well also introducing eight inches length of lal chitra branch, so as to enter into the mouth of the womb produces abortion.

Tamarind pulp, Jabakkhar Naban salt, mixed, and taken : as well as lal chitra branch introduced produces abortion.

Arairaj tree bark, black pepper corns 25, produces abortion.

Golockpore pice, Bahoo leaf, used for the after consequences.

Wookra root, black pepper corns boiled together are used as the above for the space of three days.

Expressed juice of Boori Gooa Pan ʒss. to be repeated every third hour to produce abortion.

Assafœtida softened with water was anointed in the region of the navel, and at the same time hot milk was given internally, as hot as could be taken, and that of large quantity, in a case of threatened abortion : this hastened the expulsion of the fœtus and the remedy is used for the production of abortion also.

OBSTETRICAL PREPARATIONS.

Nos. DEVELOPEMENT OF THE HUMAN OVUM.

210.* *Caducous membrane, with the human ovum attached*, expelled from the uterus about the second month of gestation. It was supposed to be a mass of coagulated blood, or what is usually called a mole, but on a careful examination it was found to be a deciduous membrane with an ovum. The embryo is barely larger than a mustard seed, and may be seen suspended by the funis, no traces of arms or legs are yet visible. *See* a case by Sir E. Home. Lect. Comp. Anat. vol. iii. p. 290.

521. *Human embryo, one month old.* Shews in a most beautiful manner the greater part of the decidua-reflexa, as well as the decidua-vera reversed by the action of abortion, whilst the more tenacious chorion and amnion were protruded through entire, the fœtus or embryo rather less than a maggot is lying at the bottom of the amnion, the myriads of vessels that had passed between the decidua-reflexa and chorion are very evident and preserve in appearance a strong analogy with the membrane covering fruit. From a lady in Fort William, after being upset in a boat.

584. *Embryo and membranes a little further advanced*, the fœtus as large as a couple of peas. The head much larger than the rest of the body.

207.* *Deciduous membrane* cast off from the internal surface of the uterus of a woman, who stated herself to have been three months advanced in pregnancy when the occurrence took place. The form of the impregnated uterus is most accurately preserved, as if a cast had intentionally been taken of its cavity. The orifices leading to the Fallopian tubes are pointed out by pieces of colored glass The ovum by some accident or mismanagement of the party who first examined the part has been destroyed, but the flocculent chorion and a small remnant of the umbilical cord, indicate what there can be no reason to doubt, that a fœtus had been there.

The patient was a soldier's wife ; a few days after admission to the General Hospital she died of fever attended with delirium ; the contents of the uterus having been expelled a few days prior to her decease.

323. *Human ovum about the second month of pregnancy with the decidua.*

717. *Fœtus and membranes* but little advanced from the last preparation.

538. *Four fœtuses from three months to five months,* shewing gradual developement. The meagre formation of the extremities in the first of the series is well contrasted with the more mature state of the last.

170. *A human embryo of about six weeks.* Presented by Mr. Evans.

Nos.

171.* *A human embryo,* between the third and fourth months, showing the chorion, and amnion membranes, the latter has been partially detached and reflected in order to bring the former into view. Presented by G. Evans, Esq.

172. *A human fœtus of about five months.* Viscera in situ, the prolongations of the vessels of the funis into the abdomen and pelvis are traced on to their respective terminations.

685. *Fœtus of about four months.*

776. *Fœtus of about five months.*

643. *Fœtus closely enveloped in its membranes.* From a Native woman who gave it birth during the last agony. She died of dysentery.

343. *Fœtus of six months and half.*

540. *A full grown fœtus, asphyxied.* The clots of blood about the ear, nose and mouth, shew the cause of its early death. See Case 540, p. 306.

MEMBRANES AND PLACENTA.

208. *Nutmeg with its natural involucra,* showing the bands of mace beautifully encircling the nut, both of which are securely protected from external injury by a thick pulpy mass or layer of vegetable matter that surrounds the whole. At the broad end the nutrient vessels may be seen penetrating the nut, by which its life and growth are maintained. The coverings may be considered as analogous to the membranes of the ovum in viviparous animals, and the nutrient vessels as answering the purpose of an umbilical cord.

173. *The human placenta at the full period of utero-gestation,* showing its figure and size after expulsion. The fœtal surface is inverted to show more distinctly the funis and the membranes proper to the fœtus.

523. *Double membranes attached to one placenta from an European woman delivered of twins,* in the College Hospital. The distinct cavities for each child, and the two distinct umbilical cords with their separate insertions are very manifest.

611. *Putrid placenta.* See Case p. 311.

MORBID CONDITIONS OF THE FŒTUS IN UTERO.

601. *Atrophy of the fœtus.*

604. *Putrid fœtus.*

582. *An extreme degree of the same kind of atrophy. This is an extra-uterine fœtus.*

602. *Putrified fœtus greatly distended.* See Case 602.

566. *Death of fœtus in utero.*

678. *Immense hydrocephalus in the fœtus.* From the enlarged abdomen of the mother it was supposed to be a twin case. The neck gave way from the application of the forceps to the body. This was followed by a gush of water, thought to have been occasioned by rupture of the bladder. But the collapsed hydrocephalic head from whence the water actually came, through the spinal canal, soon followed, and showed the nature of the case.

880. *Shewing spontaneous expulsion of fœtus.*

COMPARATIVE ILLUSTRATIONS.

385. *Young crow (C. Dorcus) showing yolk-bag, and membranes of the egg.*

Nos.
705. }
710. } *Ova of the crocodile (C. biporcatus.) The cloaca of the crocodile?* shewing the termination of the ovi-ducts and of the ureters; the rectum; the sphincter-ani et vaginæ, &c.*
240. *The ova of the cobra capella (snake).*
237. *Egg of the boa constrictor* (Python tygris,) the young is just taken from the shell.
707. *Intestinal worm in the act of parturition.*

ILLUSTRATIONS OF THE UTERUS.

176.* *Impregnated uterus of the domestic rat (mus decumanus, Linn.) with nine well advanced embryos.* The nine fœtuses here beautifully developed are seen symmetrically arranged in each of the cornua of the uterus (double in these multiparous animals), and placed perfectly distinct from each other. One has been removed from its natural position to shew its size and state of perfection, and is seen lying at the bottom of the bottle. Presented by G. Evans, Esq.

177.* *Cordated bat (vespertilio spasma) shewing the impregnated uterus in the genus vespertilio.* There is a curious anomaly in this bat in the circumstance of its having pubal as well as pectoral mammæ. That there should be a necessity for supernumerary organs of this nature in one family of the insectivorous bats, more than another, when they all agree so nearly in their habits and mode of life, appears strange; and although this remarkable peculiarity has been noticed by some very distinguished naturalists, none have yet offered a satisfactory explanation of their use. That they are intimately connected with the generative functions, and are intended to supply the wants of the young animal on some pressing emergency there can be no doubt, and as parts supplied (by nature) are always in proportion to the demand upon them, there is every reason to believe that this deviation from the general characters of the other vespertilionidæ is a physical adaptation of a wise means to answer some very important and useful end in the economy of the bats possessing such an arrangement. Presented by G. Evans, Esq.

719.* *Cornuted uterus (some small animal.)*

590. *Larger cornuted uterus of some multiparous animal. It is full of germs like a bunch of grapes, with one ovary laid open.*

324.* *Uterus of a deer, (cervus elephas?)* The vessels of the organ have been injected and the natural appendages have been duly preserved. This preparation has been prepared for the purpose of showing the difference between the form of the human uterus and that of animals, all classes of which have the fundus divided into two branches or horns; and each order differing from another only in some outward mark or inward peculiarity of structure by which it is separated from those that precede or follow it in the order of systematic arrangement.

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* See plate LXIII. p. 208, Museum Cat. of R. C. S. London.—ORGANS OF GEN. vol. iv.

Nos. HUMAN UTERUS AND APPENDAGES.

203.* *Female organs of generation in their natural and healthy state.* The unimpregnated uterus occupying a situation between the urinary bladder and the intestinum rectum, and their respective proportions, as well as the relative position of the several parts forming the contents of the female pelvis, are here well displayed. The vaginal sheath has been laid open laterally to expose its internal rugous or corrugated structure, and to show the situation and appearance of the os tincæ. Sections of the ovaria and divisions of the Fallopian tubes throughout their whole length have also been made for discovering their respective internal structures. The vagina originating all round from the neck of the womb or cervix uteri, just above the mouth or os tincæ, where the latter projects into it may be distinctly seen, and its continuation traced on to its termination at the inferior extremity upon the genital fissure or vulva. At the pubic arch, the piece of glass marks the situation of the orifice of the urethra, a point of great importance in the study and practice of midwifery.

576. *Malformation in the fœtus of the genital organs.* Although nearly hermaphrodite, the female sex predominates.

204.* *Uterus, vagina, and greater portion of the external parts of generation of a young Mahomedan female, displaying laceration of the perineum and a considerable portion of the vaginal sheath,* the effects of violence done to the parts on the first act of copulation, by which a violent hemorrhage to the destruction of the child (barely twelve years old) was occasioned. The uterus and parts concerned are diminutive and undeveloped as might naturally be expected at that tender age, and before the process of menstruation had been established. The coagula at the bottom of the bottle were removed from the vagina after death. The sudden and unlooked-for death of the child on the first night of her marriage, and the unaccountable quantity of blood found beneath the bed, and upon her linen, led to the suspicion of unfair means having been resorted to for her destruction. The body having accordingly been exhumed to ascertain the cause of her death, the vagina and perineum were found ruptured in the manner above described, and as is represented in the preparation. But as a judicial enquiry elicited no facts or circumstances tending to show that any unlawful means had been made use of by the husband to effect his purpose, and his generative organs presenting nothing unusual to account for the appearances, while the immediate cause of her death was satisfactorily explained by loss of blood from the vagina, it may be considered a case of extreme preternatural weakness or laxity of the genital system of the female, and one of very rare occurrence, for the common practice of Eastern nations in forcing sexual intercourse upon children of even earlier years than the subject of the present enquiry, would not appear to be attended with similar disastrous consequences.

206. *Uterus of a Native woman of unusually small volume (atrophied.)* The ovaries in this preparation on being laid open to show their structure, whether healthy or abnormal, were found to be made

Nos. up principally of cysts, containing a morbid inorganic kind of pulp of too soft a texture to admit of being preserved. The cysts however point out their number and extent, and their position leads, to the supposition of their either being Graaffian vesicles or corpora lutea which from some latent cause may have undergone this alteration of structure. There is also a pendulous sac (hydatid ?) containing a pellucid fluid, suspended by a long pedicle from the left broad ligament, close to the fimbriated extremity of one of he *Fallopian tubes, which latter are both quite impervious, a circumstance by no means uncommon in women of loose, and abandoned habits.*

NOTE.—On examining the uterine organs of courtezans I have noticed this very frequent occurrence. The tubes are obliterated by a thickening of their parietes, occasioned no doubt by the habitual orgasm in which they are kept, in the constantly excited state of the uterine system ; leading in the end to exhaustion of its natural powers, and the atonic state it here presents. May not this condition of the organs satisfactorily explain the reason why prostitutes seldom or never conceive ? *

The woman from whom this preparation was taken had long been a most notorious prostitute, and came to her death by a fall from the top of a dwelling house while in a state of extreme intoxication. The processus dentatus of the first cervical vertebra was broken off short from the body of the bone, and having been forced forward by the violence of the fall upon the spinal chord, death was the immediate consequence of the accident. The preparation showing the fractured part is in the museum. See No. 274, SERIES OF INJURED AND DISEASED BONES.

183. *Ulcers on vagina so numerous and extensive as to nearly cover it.* The uterus (its mouth) is also affected.

687. *Scirrous state of the womb, from which a polypus had been removed.* By Allan Webb, Esq. *See* p. 315.

866. *Pediculated, carcinomatous tumour, projecting into the vagina from the fundus of the womb.* (Account presented by Tumeez Khan, Student of the College.)

The subject from whom this specimen has been taken, was a native dark-looking female, brought from the *Ghaut* (river side) for dissection. She was about thirty years of age, her countenance indicated that her death had not been occasioned by any lingering or protracted disease ; her general frame also was not much emaciated.

The walls of the uterus are much thickened, and the organ itself somewhat larger than ordinary, and very vascular. The tumour is cordate and about the size of an alligator-pear ; its apex tapering down in the canal of the vagina, and base above ; from the latter is seen proceeding upwards a peduncle about an inch and half in length, by means of which the tumor is firmly attached to the uterine walls. The surface of the tumour is interspersed with

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* Or perhaps repeated attacks of Gonorrhœa—or inflammation from repeated abortion may produce obliteration.

Nos. florid red marks, or patches of inflammation, and when observed from a little distance there are some yellowish white spots seen which on close and careful inspection are found to be surrounded with livid bluish areolæ, and some of them are covered with pus. The substance of the tumour was seen by making a transverse incision posteriorly. It is white, dense, and fibro-cartilaginous.

The canal of the vagina (before washing) was full of purulent matter, mixed with a quantity of ichorous bloody discharge. The natural corrugated and rugous state of the mucus membrane lining it is lost ; its circumferential diameter is considerably dilated, and its walls hypertrophied ; they communicate an indurated and gritty feel to the fingers. The apex of the tumour is seen depending as low down within the canal as a few lines above the os externum.

The ovary of the right side is converted into a cyst of about the size of an orange, its parietes thin and fibrous, apparently unilocular, within it is contained a yellowish, transparent, serous fluid, and the surface is traversed with numerous branching blood vessels.

Appended to the Fallopian tube of the same side and a little outward to the cyst, is seen an hydatid-looking small vesicle, filled with limpid liquid. The left ovary has its parietes rather thickened and veniform ; on laying it open two or three partitions were seen, the septa are very thin, delicate and transparent, and within the cells, a small quantity of liquid was observed.

A knowledge of the co-existence of this disease, with that of the stomach, &c., led me to examine those parts, and the following are the morbid appearances presented.

In the stomach no aliment was found, except some brownish thick liquid ; the pyloric extremity of it is diseased (accompanying is the specimen) and there are distinct traces of inflammation observable. There are also two or three circular spots seen, where the mucous membrane has been abraded and the subjacent tissue has a white, glistening, pearly appearance. The mucous membrane lining the duodenum and the pyloric end of the stomach is very soft and easily separable and extremely puckered up. The vessels of the small intestines of the peritoneum and of the stomach, were highly injected with red blood, and a quantity of fluid was seen in the abdominal cavity, which probably exuded and accumulated after death. The liver was apparently healthy but contracted adhesion with the abdominal parietes and diaphragm by means of fibrous bands. The gall-bladder was gorged full.

The urinary bladder was full of yellow, offensive, turbid urine, the retention was probably occasioned by occlusion of the urethra from pressure of the tumour. *See* CASE p. 315.

522. *Uterus vagina and bladder*, taken from the body of a soldier's wife who died in Fort William of cholera. Shews the formation of cysts in the ovary, and also an inflamed and thickened state of the bladder ; a piece of glass is introduced to distend a cyst in the right ovary. Presented by Allan Webb, Esq.

597. *Atrophy of the ovaria, uterus and bladder attached.*

596. *Ovaria fully developed, full of germs*, in a young Native girl, the arbor-vitæ well seen in the divided uterus.

Nos.

520. *Uterus vagina, fœtal membranes and fœtus, from an European woman, about the third month;—died of cholera in the Fort.* The anatomy of the fœtal membranes most perfectly and beautifully demonstrated, also the mode of nutrition, and the formation and attachment of the fœtus. A triangular flap has been raised up from the uterus, and the spongy decidua-vera has been dissected from it. Its uterine surface has a most close analogy with the white pithy coat of an orange; it is seen reflected all round over the internal membranes to form the decidua-reflexa, which evidently performs the part of a placenta at this early stage. The innumerable vessels running between it and the true chorion are distinctly shewn at the upper part. The chorion also is reflected aside, and crowds of vessels of still greater tenuity are seen distributed between it and the amnion, in which delicate film-like membrane is seen the embryo. The head of the fœtus is now as large as the rest of the body, although the organs of sense, eyes, ears, fingers, toes, are even now formed, and the insertion of the funis is seen. Presented by Allan Webb, Esq. *See* Case p. 296.

642. *Fœtus in utero of about four months.*

554. *A very fine preparation of the fœtus (at five months) in utero.* The child is seen lying in the membranes, through a large opening, formed by cutting away the walls of the uterus. This reflected portion shews very distinctly the decidua-vera adhering to the uterine wall, whilst the decidua-reflexa has now lost so much of its villous appearance that it is almost as transparent as the chorion and amnion. The muscular fibres of the womb are well seen, interlacing each other and the situation of the os uteri also through an opening in the vagina. The relative position also of the bladder and rectum. And lastly the preparation tells its own tale of the cause of death. The gut is seen ulcerated and partially disorganised from dysenteric disease. From a Hindoo woman in the College Hospital. See Case 554, p. 300.

835. *Cæsarian section of the uterus. Placenta extruded after death* had extinguished every evidence of vitality in other organs of the body. Presented by Allan Webb, Esq. See Case 835, p. 307.

850. *Inflammation of the uterus at full period. Sloughing of the neck of the womb and of the vagina. See* p. 311.

174. *Human uterus apparently a few weeks after parturition.* This preparation was taken from a Native woman, who died of rupture of the liver. It forms a striking contrast to the last preparation, although the uterus has hardly recovered from its parturient state, as is evinced by the openness of its structure, the enlarged size of the veins, the protruding form of the os tincæ, and the generally attenuated condition of the vagina. Two coloured pieces of glass are introduced into the Fallopian tubes, pointing out their course towards the ovaria; and in one of the latter may be seen the corpus luteum of the last impregnation. The supposed proofs of former conceptions are visible in both ovaria. See Case RUPTURED LIVER, p. 72.

833. *Uterus appendages and external parts of generation of a young Hindoo girl,* who aborted at the first month of a first conception, and died a week afterwards. The uterus is very small.

Nos.

675. *Ulceration and sloughing of the external organs after exhibition of mercury for syphilis (uterus and ovary attached.) From a young Native girl,* who was found to labour under spleen disease. Presented by R. W. Rrighton, Esq.

571. *Inflamed uterus, abscesses in ovaria and Fallopian tubes.**

855. *Sloughing uterus,* after the use of instruments in delivery.

603. *Another specimen of sloughing uterus, with sphacelus of the neck and perforation and destruction of the vagina.* See p. 310.

794. *Sloughing uterus (from the same cause?)*

631. *Inflamed uterus.*

205. *Uterus and appendages of a Hindoo female, showing an extra-uterine or tubal conception.* The rent from whence the fatal hemorrhage flowed into the abdominal cavity and extinguished life, is at the posterior part of the right Fallopian tube, near its termination in the body of the uterus. The corpus luteum of this recent impregnation may be seen by examining the ovarium of the same side, where also is a large cyst apparently that of an incipient ovarial dropsy. A large quantity of extravasated and coagulated blood was removed from the posterior surface of the uterus where it had insinuated itself in a complicated net-work of adhesions formed by reflexions and duplicatures of the peritoneum upon the rectum, connected again with those of the ligamentum latum. This had been done, as it slowly oozed from the lacerated opening in the Fallopian tube, which had been distended and ruptured by the increasing size of the ovum, the tube itself being obstructed at its entrance into the substance of the uterus. There was no fœtus (nor distinct membranes) discoverable, it having most probably been detached and lost by the previous examination it had undergone, but there was evidently that efflorescent state of the interior surface of the uterus, which, though it did not exactly amount to a deciduous membrane, would no doubt have ultimately led to the formation of one, nor did the uterus appear to be increased in size as is stated to be the case in most instances of extra-uterine fœtation. The closed or open state of the cervix uteri, could not be ascertained, as the parts had been removed from the body and submitted to scrutiny before it was sent to the College for preservation. Presented by Allan Webb, Esq. See p. 294 of this work.

541. *Interstitial extra-uterine pregnancy.* The preparation was found in the College dissecting rooms, but so injured in removal as to lose much of its character. That there was a fœtus may be inferred from the amnion and chorion (membranes) which still adhere to the Fallopian tubes and to the ovaries, whilst the interior surface of the uterus is lined by a decidua. It would appear as if nature had set up a process for the admission of the embryo into the uterus, for there is a distinct sac or cavity in the right cornu of the womb, lined with black coagulum, and the wall of the uterus is as thin here as a shilling, whilst elsewhere

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* I have seen several instances in the dissecting rooms—doubtless from inflammation of womb brought on by the *abortionist.*

Nos. it is as thick as a finger. The membranes are so beautifully injected that it is much to be regretted they were not preserved entire.*

175. *Uterus of a woman who died of uterine hemorrhage a short time after delivery.* Part of the decidua still remains, and there is a cyst formed in the left ovary. The particulars of the case beyond the above fact are unknown. Presented by Mr. Evans.

DISEASES OF THE OVARIA.

156.* *Encysted or dropsical ovarium from the human subject.* The cyst is divided by septa into distinct compartments or congeries of cells, by which it is obvious that the operation of drawing off the contents of one will have no effect in lessening or evacuating that of the other cavities. *See* Case p. 314.

156. *Another larger ovary.*

670. *Ovarium (right) enlarged to the size of an adult head in one cyst.* Left ovary atrophied, uterus somewhat enlarged but apparently healthy.

EXTERNAL ORGANS.

675. *Sloughing of the external organs.*

210. *Elephantoid tumours, removed from the labia pudendi of a Native woman (equal in size to an adult head.)* They were of such large size when they were extirpated that they weighed together full 12lbs. Presented by Mr. Evans.

216. *Warty excrescences apparently from the labia pudendi.*

876. *A large tumour, the size of two heads; it grew from the upper part of the labia majora, and mons veneris.* Yet the woman aborted in the Police Hospital a fortnight before her death and the uterus and vagina are preserved to show the fact. The corpus luteum is seen in the ovary. The tumour (which would be supposed an effectual barrier to impregnation) measured 2 feet 2 inches in circumference and 12 inches across. Presented by J. Maxton, Esq.

MONSTERS.

539. *A bicephalous fœtus.* In this very curious deviation from normal type, there was, besides the double head and neck, a double heart, and double stomach; the parts below the diaphragm single.†

698. *This Androgynous monster has only one face, to two heads and two*

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* *Case of Interstitial Extra-Uterine Pregnancy.* By M. Payan. (*Bulletin de l'Academie Royale de Medecine*, October 31, 1843.)—A woman, 33 years of age, when about three months pregnant, was suddenly seized with violent pains in the abdominal region, accompanied with faintness and sickness. She rapidly became pale, and died in a few hours. It was found that the abdominal cavity was filled with coagulated blood and serous fluid. The uterus was found enlarged to the size it usually has at the third month; but on its upper surface projected a tumour with diaphanous walls, through which could be seen the embryo floating in an aqueous fluid. The *os uteri* and neck were so distended as easily to allow the introduction of the little finger. Its walls were thick, and lined with a pretty thick compressible matter, forming a kind of imperfectly organized pseudo-membrane, which filled the whole cavity of the uterus. There were no traces of blood in the uterus. Above the uterine cavity was found one formed within the thickness of the uterine tissue, and situated towards the upper left side of the organ, at the point where the Fallopian tube enters. This second interstitial cavity was so thin in its walls by the distension and stretching of the parts, that it was translucent over a considerable extent, and allowed the embryo with its placenta to be seen through it. The embryo was perfect, of the male sex, and the placenta was attached to the posterior and upper portion of this interstitial cavity.

† See dissection of a similar monster by Mr. Bromilow, Edin. Med. Journ. Vol. LV. p. 436.

Nos. *bodies. The bodies being joined or confounded together along the thorax and abdomen by their anterior aspects.*

757. *A model of super-fœtation in a native Hindoo youth.* The fœtus perfect except the neck, which is the only part adhering to the chest of the boy.

758. *Super-fœtation in an adult Chinaman.* Exactly like the last. From Asiatic Society.

211. *Malformed domestic pig*, double in all parts, except the head which is quite natural.

578. *Part of what would appear to be a monstrous kid*, or an abortive misshapen calf. It is an *acephalous production* possessing a spinal cord par vagum, and great sympathetic nerve. From whence this strange aberration from nature was obtained it is impossible to say.

486. *Monstrous lamb, malformation of the head.*
686. *A bicephalous calf* (*vitulus biceps.*)
386. *Monstrous pig with a rudimentary eye in his mouth.*
453. *Duck* (*quadrupes.*)
211. *Malformed pig* (*sus geminus uniceps.*)
695. *Monstrous fœtal calf* (*Cyclopian.*)
696. *Deformed head of a calf.*
697. *Double-faced pig.*
668. *Double-headed pig* (*sus biceps.*)
591. *Fœtus of a cow.*
394. *Monstrous chicken* (*pullus geminus uniceps.*)
393. ———— ———— (*pullus geminus uniceps.*)
326. ———————— (*pullus geminus uniceps.*)
720. ———————— (*pullus geminus uniceps.*)
718. ———————— (*pullus geminus uniceps.*)
713. *Monstrous duckling, one head* (*rudimental.*)
712. *Monstrous kitten* (*felis monocephalus bicorpor.*)
341. *Monstrous kitten* (*felis bicorpor uniceps.*)
393. *Monstrous kitten.*
592. *Fœtus of a cow.*
591. *Another fœtus of a cow.*
659. *Imperfect ovum.*
714. *Two fœtuses of a species of kangaroo.*

325.} 349.} *A nearly perfect double fœtus. The internal organs of this human monstrosity, described by H. H. Goodeve*[a], *Esq. M. D.*

The following account is drawn up from an examination which I made at the request of Principal Bramley, of the double fœtus which the Society were kind enough to present to the Medical College at their meeting, 5th of March, 1835. The results of this examination are highly interesting; the monster affording some very singular anomalies in the arrangement of the viscera.

The attempt to form two distinct children had nearly succeeded; very little more was required to effect it. That little, however, was sufficient to produce a strange complication in some of the important organs, more especially in the heart; a diversion from the natural structure, which was evidently incompatible with any prolonged existence.

Nos.

325. *The monster consists of two female children united together in the thorax and upper part of the abdomen by a broad connection, which extends from the sternum to the umbilicus.* Below and above these two points all is apparently natural. The heads, necks, arms, lower abdomen, pelvis and inferior extremities of both children are perfect, and the external organs of generation complete. There is only one perfect umbilical cord, but below that is seen a small prolongation about an inch in length, and three parts of an inch in diameter. This prolongation is hollow, at the further extremity forming a cavity about the size of a hazel-nut, terminating at the nearer end in a mass of cellular structure. It appears externally like a rudimentary second cord, but its internal structure would almost lead to the supposition that it was rather a monstrous umbilical vesicle. The length of the whole monster is from 15 to 16 inches: circumference of the whole 11 to 12; circumference of the connecting medium 9 to 10 inches, length of ditto about 4. Circumference of each head round the forehead and vertex 11 inches. Weight five pounds. There is considerable quantity of hair upon the heads and even upon the body and extremities, and the finger and toe nails are perfect. In fact, though rather small, it was evidently born at the full period of utero-gestation.

Upon examining the internal structure, I found one thoracic and one abdominal cavity common to both children, these cavities being divided from each other by a single diaphragm.

The walls of the thorax are composed of a double set of ribs, with two sterni, one on the anterior, and the other on the posterior part of the commissure, so placed that each sternum is common to both children. There is consequently a spinal column to each. The abdominal muscles are likewise double. The abdominal and pelvic viscera of both children are perfect in all things, with the exception of the liver. This organ appears to consist of two perfect livers, united together at their convex surfaces. There are two gall-bladders, one on each side of the centre, two portæ, two hepatic arteries, and two venæ portarum, with distinct cystic and hepatic ducts for each side. Two umbilical veins pass down from the common navel, and separating from each other, they enter the venæ portæ of each division. In their course these vessels, immediately before reaching their destination, pass directly through the substance of the liver for about an inch, and emerging from thence enter the transverse sulcus. Each of these vessels sends off a ductus venosus, which terminates in a separate vena cava. There are four umbilical arteries, two for each child. This arrangement of the liver of course reverses completely the disposition of the abdominal viscera of the right child. The spleen is placed in the right hypochondrium, the pyloric extremity of the stomach looks towards the left side, and the duodenum crosses the spine from left to right. All the other abdominal and pelvic viscera are, as I have before remarked, perfectly distinct on both sides. The single diaphragm is perforated by a double set of the customary foramina; those of the right side being necessarily reversed, to correspond to the disposition of the organs connected with it. Indeed, the abdominal contents are so placed, that their arrangement may perhaps most readily be understood by conceiving the viscera of one child reflected in a mirror to form the viscera of the other.

Of all the organs, however, those situated in the thorax of this monster are the most curious. In the centre of the whole, almost immediately behind the anterior sternum, floating in a capacious pericardium, is a huge heart common to both children. Yet in this, too, there is a partial attempt at the formation of a double organ. Externally there is a slight sulcus running down the centre, corresponding to an imperfect septum within. But in the interior of the organ all is confusion and malformation. The right ventricle on either side opens into a large auricular cavity, common to both, and situated at the upper part of the organ. The opening between these cavities is furnished with a valve, also apparently common to both. From the right ventricle of the left side springs a pulmonary artery, but from the corresponding ventricle of the right division no similar vessel arises. The only opening into that cavity is through the auricular-ventricular foramen. The superior and inferior venæ cavæ of both sides empty themselves into the common right auricle. This latter cavity again communicates with a common left auricle by an enormous foramen which may be supposed to represent the *foramen-ovale*, but no trace of any valvular arrangement to cover this gap can be discovered ;—all is free, and the passage of the blood through it in either direction must have been unimpeded. Into the left common auricle one pulmonary vein from each child terminates. This left auricle communicates with two separate left ventricles. Indeed there is apparently one common opening between all the cavities of the heart. From each of the left ventricles arises a perfect aorta, one passing to the left in the natural course, the other curving to the right to reach the spine of the right child. The semilunar valves of each are perfect, they both give off coronary arteries, and from the arches of either side spring arteriæ-innominatæ, carotids, and subclavians. The single pulmonary artery, viz. that of the left side, is distributed exclusively to the lungs of the left child, and a well-formed ductus arteriosus stretches between it and the aorta. The lungs of both children are perfect, and naturally formed. Those of each side are contained in a separate pleura. A thymus gland, common to both children, is placed in the upper part of the thoracic cavity. The absence of a direct pulmonary artery on the right side is supplied by a branch which arises from the arch of the aorta on its inferior side. In fact, this branch is apparently the ductus arteriosus ; the commencement of the pulmonary artery being absent ; or perhaps, more properly speaking, the aorta, and the root of the pulmonary artery, have coalesced in the progress of developement, forming but one vessel as far as the ductus arteriosus. The true pulmonary artery beginning from thence.

OBSTETRICAL CASES.

LACERATION OF THE PERINEUM AND A CONSIDERABLE PORTION OF THE VAGINAL SHEATH, THE EFFECTS OF VIOLENCE DONE TO THE PARTS IN THE FIRST ACT OF COPULATION.

(*By G. Evans, Esq.*)

A violent hemorrhage caused the destruction of the child, a Mahomedan girl, who was barely twelve years old. The uterus and other parts concerned are diminutive and undeveloped as might naturally be expected at that tender age, and before the process of menstruation had been established. The coagula at the bottom of the bottle were removed from the vagina after death.

The sudden and unlooked-for death of the child on the first night of her marriage, and the unaccountable quantity of blood found beneath the bed, and upon her linen, led to the suspicion of unfair means having been resorted to for her destruction. The body having accordingly been exhumed to ascertain the cause of her death, the vagina and perineum were found ruptured in the manner above described, and as is represented in the preparation. But as a judicial enquiry elicited no facts or circumstances tending to show that any unlawful means had been made use of by the husband to effect his purpose, and his generative organs presenting nothing unusual to account for these appearances, whilst the immediate cause of her death was satisfactorily explained by the loss of blood from the vagina, it may be considered a case of extreme preternatural weakness or laxity of the genital system of the female, and one of very rare occurrence ; for the common practice of eastern nations in foreign sexual intercourse upon children, of even earlier years than the subject of the present enquiry, would not appear to be attended with similar disastrous consequences.

TUBAL PREGNANCY OF ABOUT THREE WEEKS—INTERNAL HEMORRHAGE—WHITE BLOOD ONLY CIRCULATING.

(*By Allan Webb, Esq.*)

May 21st. Called upon to visit a Native woman, said to be dying of cholera ; was accompanied by Dr. Cheek of Burdwan.

Rebecca———was an elegant and even beautiful Bengali girl, about 16, married, and a convert, in the Missionary establishment here. When first seen (about 6 P. M.) she was restless, tossing about in bed ; no pulse, or an extremely feeble one. Respiration 60 : no pain in the abdomen upon pressure : no cholera expression of face. The abdomen was, however, enlarged, but soft, and yielding ; no resistance being offered by the muscles to pressure. To my inquiries if she were pregnant, she and those around her replied in the negative. I could feel neither uterus nor bladder enlarged.

The rapid respiration led me to examine the chest. Percussion on the left side elicited the natural sound, the right, however, gave a very dull sound, and scarce any sound at all existed posteriorly. The "rale crepitant" too was distinctly heard over nearly the whole posterior and lateral part of the chest of this side.

Although there was no lividity of lips, nor working of the alæ nasi, no abdominal respiration nor coldness of skin ; I concluded this must be a case of neglected pneumonia, and opened a vein in the arm, with a view to relieve the respiration.

The blood instead of being black, was scarcely deeper-colored than common serum; flowed slowly at first, more freely afterwards, and improved in color. In raising herself to vomit she nearly fainted, and no more blood flowed from the arm.

Gave a little ether, and ordered a warm bath to be prepared. She seemed somewhat easier after the ether: but in the act of raising her, to enter the bath, she breathed her last. Respiration ceased instantaneously, as also the heart's action: but the body was quite warm, and retained this heat a considerable time.

Seeing the fatal consequences of raising the body, I felt convinced that she had died from internal hemorrhage, and stated to the friends my belief, that most likely this would be found to originate in the escape of a fœtus, from some location external to the womb. Was allowed to examine the body, which I did three hours after death; Dr. Cheek and the Rev. Mr. Weitbrecht being present.

Post-mortem Examination.

Appearance of body. Externally that of perfect health, and perfect symmetry.

Abdomen. On puncturing the abdomen immediately below the sternum, blood gushed out. Before proceeding further, I suffered an immense quantity to escape, as much indeed as filled two wash-basins. On fully laying open the cavity of the abdomen, all the organs appeared to be in health, but having the peculiar bleached appearance observed in slaughtered animals. The omentum which was adherent in the hypogastric regions being raised, and the bowels turned aside; the pelvis was seen to be filled up with a large and tolerably firm coagulum of black blood. Removing this, the bladder was observed contracted to the size of a small apple. The uterus of the natural size, but an *enlargement was observed in the right Fallopian tube,* about the size of a large walnut, with which the great coagulum before spoken of was intimately connected. This enlargement was exceedingly thinned, anteriorly, with one or two black spots, ready to give way; whilst superiorly, *it had burst,* and given exit to a small fœtus, in which the rudiments of a spine, head and limbs, could be distinctly made out through the membranes. The placenta had not wholly escaped, part of it being still adherent to the internal surface of the Fallopian tube. The free villous surface seeming to consist of the torn mouths of an immense congeries of small vessels, whence the hemorrhage had come. No larger vessel could be found to account for it, yet fœtus, placenta, and membranes together were not bigger than a good-sized walnut. This rent Fallopian tube is intimately connected with the firmest portion of the coagulum. *Right ovary,* size of a fig, containing cysts: *left ovary* and Fallopian tube healthy: *uterus* closed with tenacious secretion, lined with membrana decidua: *vagina* bleached and corrugated: *rectum* bleached and contracted. A well-defined valve formed by a fold of mucous membrane exists about two inches from the anus, and looks like the os tincæ, projecting into the vagina; below this valve the gut forms a capacious pouch. *Bladder* bleached; firmly contracted.

Chest. The lung of the left side healthy, one or two spots of darker color at posterior part. *Right lung,* externally and posteriorly, dark-colored and spumous on being sliced. Bronchial tubes of this (right) lung loaded with spumous sputa, bubbles exceedingly minute.—*Heart* pale ; so firmly contracted as not to exceed an orange in size.

Remarks.

The post-mortem shewed that there was inflammation of the lungs ; and although during life I thought this insufficient to account for all the symptoms observed, still, in the hasty examination made, the symptoms of pneumonia were all I could lay hold of, and act upon. (She died within an hour of being first seen.) It was not till I saw the fatal effect of raising the body, that I felt assured of the existence of internal hemorrhage ; nor am I aware of any mode by which during life this can be certainly ascertained. The most extensive hemorrhage, from a burst aneurism, I have seen pass undetected ; and unless the aneurism had been first made out, I do not know of any way beyond the inference furnished in fainting, by which internal hemorrhage can be surely known.

She had been ill three days, vomiting frequently. The large coagulum from its firmness, I conclude might have been then effused ; and the adhesions of the omentum, and consolidation of the coagulum, was no doubt intended to prevent a spread of further mischief. It may, I think, be fairly inferred, that had the nature of the case been *then* ascertained, and the vomiting been allayed, bleeding and quiet enjoined, with such an exhibition of medicine as would control the circulation, further and fatal hemorrhage might have been prevented : whilst the exhibition of castor oil, and clysters, and other purgatives, was about as good a method as could be devised to counteract the efforts at recovery already begun.

That the body should continue so warm, with a mere circulation of serum, is also, I think, a remarkable feature in this case, as contrasted with the effect of the circulation of dark blood in pneumonia and cholera. I must be wrong, though in calling this serum, it looked like it, but coagulated when drawn off, assuming a brighter red color.

Lastly, it appears singular, that inflammation of the lungs, should be set up and go on, when every available ounce of blood, must have been effused into the abdomen ;* and at any rate seems to indicate that bleeding alone will not always cure pneumonia.

Burdwan, May 22nd, 1837.

DEATH OF MOTHER AND CHILD (AT THREE MONTHS) FROM CHOLERA.

No. 553.

(*By Allan Webb, Esq.*)

Mrs. Mary Harrison, H. M'.s 50th Regiment, admitted into the sick receiving room 4th December 1841.

11 A. M.
Cholera Tinct. ʒi.
Chol. Pills iij. now ; repeat every two hours, and give another dose of Tincture in half an hour if more purging.
Hot flannels dipped in Turpentine to stomach.

Came out of hospital a week ago, had been in for fever. Has been purged for two days, vomited this morning ; very weak, skin warm, pulse very feeble. (*I feel sure this poor woman will have cholera.*)

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* M. Toulmouche in the Encyclographie des Sciences Medical, August 1842. p. 258, makes a similar observation of pneumonia occurring in a system drained of its blood.

1½ P. M. Hot bottles to extremities. Cataplasm to Epigast. Turpentine friction to extremities. Cont. pill and draught.	Vomited once since admission, a small quantity of congee-like fluid with small portions of boiled egg which she had taken for breakfast; has had cramps in lower extremities, pulse continues weak, countenance much dejected, also complains of an oppression of chest; no purging; skin warm.
4½ P. M. ℞. Brandy half an ounce. Rep. Pilul. Dry friction, with a mixture of equal parts, mustard and ginger powder.	Feels very weak and low, cramps at frequent intervals in the legs; pulse somewhat more power; great thirst, skin warm, face flushed, and hot; voice more pectoral, skin clammy with perspiration, and is sodden to the touch, head very much congested.
8 P. M. Ol. Ricini. Sp. Tereb. ā. ā. ℥j. Tinct. Assafœtid. ℥ss. Congee Oj. as Enema.	Same state.
11 P. M. Brandy half an ounce Rep. Pilul. Rep. haust.	She had slept a little; vomited on waking; voice stronger, perspiration less, pulse improved thirst great, no purging, cramps have ceased.
Dec. 5th, 6 A. M. ℞. Appl. Catapl. Sinap. Epigast. Sago with ℥ij. brandy.	Vomiting continues,—looks much better, face anxious; no cramps, no purging since twelve o'clock.
8 A. M. ℞. Mist. Cretæ ℥vj. Tinct. Assafœtid. ʒij. M. A desert spoonful occasionally. Omit pill et haust. Brandy and water continued.	Vomiting frequent, tongue brown, papillæ raised,—she made urine this morning; pulse full and strong; skin warm, no perspiration, breath still cold; eyes slightly sunk: she has had four doses of pills, since eight o'clock last night.
4 P. M. ℞. Sod. Carbon. ʒj. Acid. Tart. ʒiss. m. ft. Pulv. viij. one every hour or oftener.	*She cannot bear light, nor sharp sounds, is very querulous and irritable and abusive.*
5 P. M. ℞. Turpentine embrocation.	Pulse appeared weak, skin clammy, cramps came on.
8 P. M. Liq. Ammon. ʒj. Mist. Camph. ℥i. M. ft. Haust. Calomel gr. xv. in pil. Brandy and water.	Vomiting and hiccup distressing, perspiration more free; has slept a little, pulse more weak; skin warm; has not been purged.
11 P. M. ℞. Brandy and water continued.	Vomited and purged six or seven times since 8 A. M; pulse continues weak, skin warm, thirst urgent, quite restless.
Dec. 6th, 11 A. M. Rep. Pil. Choler. iij. Stat. Pil. Hydrarg. gr. v. Ext. Coloc. Co. gr. viij. m. ft. Pil. ij. Stat. Rept. meredie si ad sit.	Skin warm, complains of great thirst, pulse strong, no perspiration, looks much better, stomach irritable. *Inclined to stupor and insensibility.*

Appl. Vesicat. Epigast. ℞. Pulv. Scam. Co. gr. xv. Cal. gr. iv. now.	1 P. M. Vomiting still very distressing.
10 P. M. Ol. Ricini Ol. Terebinth. a. a. ℥j. "now"; Enema also if bowels not moved.	Skin cold, pulse now feeble, eyes sunk. Decided collapse. *Stupor almost complete.*
Dec. 7th, 8 A. M. Creosote 1 drop. ℞. Cholera Tinct. ʒi. now, Inject. Ol. Ricini et. Ol. Tereb. ā ā ℥ii. Sago and Brandy.	Has passed a bad night, voice very weak, pulse very small and weak, eyes much sunk, skin cool. Has had two dark-colored stools in the night, vomiting has been very distressing. *Insensibility increasing.*
12 A. M. ℞. Calomel ℈i. now.	Same state, tongue brown, voice hollow.
2 P. M.	Died.

Examination twelve hours after death.

General appearance. A most remarkably strong and athletic figure, face and chest very white and anterior surface generally. Purple at back of arms, and posterior surface of the body. Abdomen tumid, breasts slightly enlarged. Body still warm as if just dead.

Head. On taking off the calvarium the whole surface of the dura mater was quickly covered with black blood, from vessels greatly congested. The great sinuses full of black blood ; effusion of serum generally between the arachnoid and pia mater. Pia mater greatly congested. Little effusion in the ventricles, copious bleeding from bloody points on slicing the white portion of the brain. The white substance seemed to be softened, and also the brain generally.

Chest. There were old adhesions on the right side between the base of the lung and pericardium. The posterior surface congested till it looked like black currant jelly, black ecchymosed spots under the pleura ; near the spine on the left side, ecchymosed spots beneath the pleura were more general ; lymph effused on the pleura and some serum also. Lung still more generally congested ; the trachea filled with frothy mucus near the bronchi, which were congested of a deep brick red color, effused spots of black blood in the cellular tissue connecting aorta with the œsophagus.

Heart, was pale, and small ; large veins entering right side were gorged with black, fluid, tar-like blood. A very firm coagulum, of apparently organized fibrine occupied a considerable portion of the right ventricle and pulmonary artery. *See* No. 558.

Abdomen. The general appearance of the intestines was a lurid red, or reddish brown, omentum and mesentery, congested. *Stomach* presented at its larger curvature, red ecchymosed spots, inflammatory blushes, thickening and softening of its villous coat, thick mucous secretion, and the coat corrugated into transverse folds, the edges of which seemed yellow with purulent matter ; whole internal surface of deep yellow color from bile. *Duodenum* had inflammatory patches, and softening and thickening ; one little spot seemed about to slough. The common duct seemed much obstructed ; the opening into gut very small, and surrounded with red dots. The cystic duct with great difficulty made out in its whole course, very narrow, and I believe impervious, the mucous surface quite black ; as well as that of the gall-bladder which contained little bile, perfectly black. *Liver* enlarged and softened. *Jejunum*, thin lurid, mucous coat softened, as was the condition of the remaining intestines, covered with thickened yellow secretions, except in the colon, where the injections had reached. Abdominal veins filled with fluid black blood.

Pelvis, uterus, enlarged to size of the fist, red and congested posteriorly, fimbriæ deeply congested, one on left side still adherent to the ovary which shewed corpus-luteum. On opening the womb the infant was seen beautifully enveloped in its membranes.—No. 554. *Bladder* contracted ; rectum empty.

Remarks.—When this poor woman first presented herself, so feeble was the cardiac impulse as determined by the stethescope, that I predicted cholera, and death, at a time when others who saw her with me thought there was nothing serious. I found the stethescope and pulse the surest indications. The reason of this is shewn in the obstruction and congestion of the heart. The head symptoms are also explained by the autopsy.*

FEVER, DIARRHŒA AND JAUNDICE—DEATH IN FIFTH MONTH OF PREGNANCY.

(*By Allan Webb, Esq.*)

May 18th, 1838.	Mrs. Elizabeth Kennoch. Admitted 18th May, 1838, aged 30 years, five months gone with child, has been suffering from diarrhœa last four days. Says that fever, comes on daily about nine, increases till twelve.
Calomel gr. vi. Pil. Rhæi. co. gr. vi. Ol. Cin. gtt. i. ft. Pil. ij. h. s. s.	Bowels have been purged this day six or seven times, dejections dirty yellow in appearance, very liquid, urine of deep yellow hue, eyes suffused with yellow, skin moist, tongue with grey fur ; pulse soft.
19th, 6 A. M. Mist. Sennæ C. ter die.	Better.
Even. Omit. Mist. Sen. Mist. Efferv. Rept. Pil.	Has vomited mixture, and several times afterwards. Bowels been acted on three times, stools bilious and watery.
20th. Calomel gr. iv. Ext. Coloc. gr. viij. m. ft. Pil. ij. nocte maneque sum. Rept. Mist. Efferv.	Bowels been acted on once by the pills, evacuation is more feculent, less fluid ; tongue clean ; eyes still deeply suffused with yellow ; vomited once this morning,—white " very bitter fluid"— feels still sick in stomach ; pulse soft ; skin cool, gums slightly swollen.
6 P. M. *V. S.* ad ℥ xij. Pil. Hydrarg. gr. v. Opii. Pulv. gr. ij. h. s. s.	Is restless ; complains of bitter taste in mouth, has uneasiness at stomach, has vomited twice. Has frequent desire to make water. Tosses the arms about and moans ; pulse quick, 128, head hot.
10 P. M.	Much easier since bleeding, lies quiet, pulse 120 ; no pain in stomach ; no vomiting, less irritability of bladder.

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* See Dr. Mouat's observations Madras Quarterly, vol. ii. p. 449.

May 21st.
Ol. Ricini ℥j. stat. sum.
℞. Liquor Ammon. Acet. ℥iij.
Mist. Camph. ℥iv.
Ant. Tart. gr. i.
Capt. Coch. iij. Amp. tertia quaq. hora.

Slept during the night at intervals; bowels not been open during the night; made water three or four times, no uneasiness at stomach. Vomited once very bitter stuff. Tongue coated grey, moist; thirst great, skin generally and conjunctiva of eyes deeply tinged with bile; pulse irregular, 140, with little power; feels easy and disposed to sleep.

Died at ½ past 3 o'clock in the morning!

No examination allowed.

FATAL DYSENTERY; AND DEATH OF FŒTUS. *No.* 554.

(*By Prussonor Comar Mitter, Sub-Asst. Surgeon.*)

June 20th, 1841.
Castor Oil ℥i.
Acetate of lead grs. ij.
Opium gr. i. every 3 hours.

Hurrow, a Hindoo woman, aged twenty-five, admitted yesterday in the ward for chronic dysentery, standing about twenty days.

The lower part of the abdomen is enlarged; nipples are also enlarged and of a dark color; says that her monthly course has been stopped about five months.

21st.
Omit. the Oil.
Cont. the other med.
Tinct. Opii. for injection at bed time.

Complains of pain in the transverse arch of the colon; passes about seven or eight muco-bloody stools, accompanied with griping and straining; tongue furred and the edges are indented; sleep disturbed; skin rather hot, pulse quick. Passed about twelve stools by the Castor oil; pain continues in the same state; pulse very weak; sleep disturbed, eyes fixed, tongue furred.

23rd.

Had the injection at night, says that she did not feel any comfort by the injection. Passed about eight stools; sleep disturbed; appetite impaired.

Died.

Post-mortem Examination.

The abdomen alone was opened and it was found nearly filled by the pregnant womb. See *No.* 554.

The dysenteric disease was confined to the rectum which was found in a miserable state of ulceration.

FEVER—PREMATURE BIRTH AT ELEVEN MONTHS—DEATH OF MOTHER AND CHILD. *No.* 850.

(*By Allan Webb, Esq.*)

February, 1833. Mrs. M. Her appearance when first seen was extremely delicate, giving the impression that she had long suffered from ill-health, and had lately *escaped from* the lancet, skin so extremely pale and bloodless; age probably 33. I have since understood that she has from a very early age been subject to nervous disorders of one kind or other, particularly hysteria, even before coming out to India, which has appeared to augment the severity of these affections. She has however, during the seven years she has been married, borne five children, they all died early—two she has lost within the last two months, one nine months old, the other two years, I understand the husband of this lady Captain M. has exceedingly delicate health.

I was first called to her, I think, on the 25th of February, she was then labouring under a fit of hysteria, attended with retching, and spasms of muscles of extremities and more or less of stupor, from this she recovered by the use of a common dose of ether and laudanum, cold applications to the head, &c. and at this time I first learnt that she was five months gone in her sixth pregnancy, that she had felt none of those symptoms of quickening which were usual with her at this time, and entertained a strong impression that she would miscarry, informing me that the surgeon who attended her, a fortnight previous to my seeing her, had bled her from this apprehension.

I was called many times after this but never found it necessary to adopt any other measures than those already enumerated, until about the 7th of March when I was informed that she had a yellow discharge, from the vagina, with scalding on making water ; that the urine was very deficient in quantity, very thick and high colored, (this I ascertained), as well as that there was considerable œdema of the legs, shortness of breathing, increased on slight exertion—that there was short irritable cough, with little expectoration and considerable thirst, with a hard pulse of about eighty-four or eighty-eight, and little or no perspiration. Appetite tolerable, spirits cheerful when excited by conversation, whilst the very *reverse* would be felt under other circumstances, and without any apparent cause she would weep. The intentions I had in view in regard to the treatment, were—

1st. To guard against any dropsical tendency by avoiding depletion. 2d. To carry off effusion that might already exist, by increasing the urinary secretion, on the altered state of which (irritating the urethra) it appeared probable the scalding and discharge might depend.*

* Generous diet, wine, &c. enjoining the necessity of being out for fresh air.

Pil. Scillæ Comp. gr. viij. ter. die. et Spt. Ether Nit. ♏. xx. Ex. Decoct Hordei. ter. die, which would have, I hoped, a beneficial effect in allaying the cough, whilst a lotion of Liq. Plumbi ʒij. Tinct. Opii. ʒiv. Aq. Puræ. ℥xvi. applied to the vagina by means of sponge might be useful as a local application.

I persisted in this plan for a week but with no good effect ; towards the latter part of the week she was wholly confined to her room. I had opportunity to observe that the uterus did not ascend so high as the umbilicus, *fancied* I could feel the child through the parietes, but the whole uterus did not seem larger than a distended bladder. During the fits of coughing or retching, there was felt a body about the size of the colon distended with air coming over the uterus in the course of the linea alba.

March 14th.
Mist. Amygdal. ℥viii.
Pulv. Ipecac. gr. xxiv.
Tinct. Digit. ♏. xxxii.
℥j. ter. die.

The skin became yellow, soon absolutely jaundiced, as well as the eyes, and occasional fits of dyspnœa, with livid lips were experienced, and the cough often prevented sleep at night.

16th
Pulv. Digital. gr. i.
Ext. Opii. gr. v.
Pulv. Zingib. gr. v. ft.
Pil. ij. ter. die sum.

(The opium produced no good effect and disordered the head ; was not repeated.) Pt. alia.

March 19th.
Mist. Amygdal. ℥viij.
Ant. Tart. gr. i. ♏ ℥j. ter die sum.
Pil. Hydr. Ext. Col. C h. s. s.
Potass. Nitrat. pro-potu.

The death of her only child yesterday affected her very much. Her spirits are extremely depressed. But the appetite continues good, and she is now in the habit of taking meat, wine, broths, jelly, barley water, tea, &c. Respiration 28, accompanied by a wheezing sound; voice lost, speaks only in whispers. Cough frequent and troublesome, with expectoration of tenacious, colorless, frothy mucus; skin pale without perspiration, still jaundiced; pulse hard, not easily compressed, 100; veins distended; tongue clean, bowels regulated by medicine; urine scanty, high-colored, not more than a pint in 24 hours, although much fluid is drank to allay the thirst; discharge much the same, scalding less. The abdomen is much enlarged, but I think chiefly from air in the intestines, a tympanitic sound being heard on philliping integuments. I cannot detect fluctuation, even when erect with the abdomen inclined forward. Advised venesection or blistering to relieve respiration. This not agreed to. Omit wine and meat.

March 20th.
V. S. ad ℥vi. gave considerable relief.
Cont. Pil. Scillæ.
Potass. Supert. pro potu.

Little alteration. Dyspnœa more severe; tongue clean; bowels open: pulse 100; respiration 28; lips livid; urine as before.

March 21st.
Ext. Opii. gr. v. h. s. s. in Pil.

Had little sleep last night, and perspired profusely; spirits depressed; in other respects the same; cough extremely troublesome at night.

March 22nd, 9 A. M.

Called to her early in the morning; found the skin hot, but bathed in perspiration; understood that she had in the night considerable fever, had talked wildly.

Mist. efferv.

She had not coughed at all scarcely, and had made more urine than for a long time previously. The head was hot, pulse 120 and rather hard, tongue slightly furred. Suffered greatly from thirst.

12 A. M.

Much the same state, but complained more of pain in abdomen, particularly left side; had frequent vomiting.

6 P. M.

Was struck with the peculiar cry of labor pains. On examination per vaginam, found os uteri considerably dilated, the pains continued pretty regularly, and in about two hours I delivered the child which was alive and even cried, the placenta followed in about twenty minutes, being preceded by one or two good pains. I staid about two hours at the bedside, during which she had a sleep for about half an hour. There were few or no after-pains. The bowels had been open twice during the day. The bladder often emptied. After seeing a bandage passed round the abdomen I left. She had so great an objection to any thing in the way of opium or laudanum, that I gave none.

March 23rd, 6 A. M.

Told she had passed a tolerable night. Bowels open twice; evacuations very offensive; had vomited twice or thrice, a sort of "dark, curdy" fluid; very little discharge per vaginam; skin hot, pulse 120, small; more than usual irritability of temper; cough troublesome again, and sickness also; slight tenderness on pressure of abdomen.

4 P. M.
V. S. ad ℥xvi.

Cal. gr. v.
Ext. Hyoscyami gr. v.
Rept. Mist. efferv.

The heat of skin greater than this morning; pulse much the same (120); great restlessness. Respiration frequent accompanied by cough; slight stupor, and unwillingness to be roused for any thing; greater tenderness on pressure, complains of pain in abdomen and back; sickness continues, matter vomited looking nearly black.

8 P. M.
Mustard plasters to feet for 20 min.
V. S. ad ℥xii.
Hyd. Sub. gr. v. Jalap 10 statim.

Little alteration; feels cooler; abdomen more hot, knees drawn up; countenance not very anxious; some delirium; pulse weak, 120; has not been fuller since bleeding. I examined evacuation from bowels which was on a cloth, found it merely mucus without any biliary color; stupor increasing, has considerable restlessness.

12 P. M.
Emp. Lyttæ Nuchæ.

Stupor complete, pupils dilated, head hot, no evacuation from bowels; in other respects same as last report.

24th March, 2 A. M.
V. S. ad ʒx.
Cal. gr. v. stat. sum.
Cont. Mist. efferv.

No improvement. Abdomen swelling, (remove bandage), screams piteously at frequent intervals; skin still hot; pulse quick but much more feeble; extremities, and head warm; is nearly out of bed with tossing about; was quieter after bleeding, for a time; she had one evacuation consisting entirely of black mucus.

4 A. M.
Ol. Ricini. Tinct. Sennæ a ʒvi. stat sum.

Lies in the same state.

9 A. M.

Sinking rapidly; hiccough came on.

½ past 10.

Expired, skin keeping hot to the last.

Not examined after death.

PREMATURE BIRTH IN THE EIGHTH MONTH FROM DYSENTERY—ASPHYXIA AND DEATH OF INFANT. See No. 540.

June 17*th*, 1834.—Mrs. B., lately from Madras aged 30, in the eighth month of third pregnancy, has suffered last three days from uneasiness in bowels, flatulent distention, ineffectual calls to stool, tenesmus, and griping. Two days ago she took Hyd. Sub. et Pulv. Rhœi a gr. v. followed by Ol. Ricini next morning, which relieved her much. Last night the frequent calls to stool, chiefly slime or lumpy fœces, and rather bloody, induced her to send for some medicine in the night.

Pulv. Rhœi. Jalap et Ext. Hyoscyam. a gr. v. Ext. Coloc. comp. gr. iv. stat.

Which produced one, more copious motion, about four this morning, attended with relief, although she has had one or two lumpy slimy motions since.

11 A. M.

Had a very small dark-colored stool with masses of mucus. Tongue clean, except a little white fur about base pulse 92, soft, skin moist, no expression of anxiety in face, but is apprehensive of premature labor. She has suffered several attacks of dysentery in India.

6 P. M.
℞ Hydrarg. c̄ Cretâ
Pulv. Rhœi.
Ext. Hyoscyam. a. gr. v. ft. pil. ii tertiis horis sumend. Farinaceous dry diet. Rest in bed.

Has been straining severely although without scarcely anything but mucus since morning. No tenderness upon pressure in cœcal region; she has had several copious, slimy, dark stools, in middle of the day; skin cool, moist, pulse 90.

8 P. M.
An emollient enema of gruel and Olive oil, &c. to be repeated.

Same state; griping and tenesmus continue griping comes on before going to stool.

18th June.
Ol. Ricin. ℥ss.
Tinct Opii. xv. ex.
Aquâ Menth. pip. stat. sumend.

Was called to her at 4 A. M. She had suffered severe pain with last stool, and being tinged with blood, it alarmed her much. The dejections in the vessel have a slimy, thick, offensive character, there is a good deal of it, and also one or two lumps *formed*, (from large intestine.) The greater part of it is thick, dark mucus; pulse and skin same, feels *weak*.

6 A. M.
Sedative draught.

Vomited the draught; griping continues, stools chiefly dark mucus, tinged here and there with blood, white flakes seen in it, and also purulent streaks.

9 A. M.
Mucil. Amyli. ℥viii.
Tinct. Opii. ʒss. stat.
Rep. pil. Hyd. c. Cret.

Injection not yet given, pain and griping less severe.

11 A. M.
V. S. ad ℥xvi.
Tinct. Opii. M. xxx. ex. Mist. Camph.

Fever came on; pain in head, pain in back. Hot dry skin, pulse 130, some degree of restlessness. Injection returned with very little feculent matter.

1 P. M.
Pil. Hyd. gr. iv. Ipec. Pulv. gr. ss.
Ex. Hyos. gr. iv. in pil. ter. hor. sum.

Seems disposed to sleep, more quiet, pulse 120, skin relaxed and moist, pain in head less, pain in back still complained of, bowels open again without much pain, dejection consisting chiefly of enema.

3 P. M.
Opiat. and Camphor Liniment—shampooing by Ayah.

Bowels been open again, pulse 118; skin dry; respiration a little hurried from having lately been at stool. Pain in head less, that of back increasing.

4 P. M.

Seems in considerable alarm and agitation on account of the pain in back, which is more spasmodic, attended with bearing down, and runs to the thighs; pulse hurried, 120; skin hot but moist, lies with knees drawn up.

Legs and stomach rubbed with Lin. Sapon.

Bowels been acted on three times since; motions, small, variegated with white and green mucosities.

½ past 5.

Complains of spasmodic pains through limbs, back and stomach. Is herself alarmed at their character. Pulse hurried, 136; skin hot, moist; lies with knees drawn up.

7 P. M.

Pains longer, more severe with bearing down efforts.

Examined os uteri; found it dilated to the size of half a crown, child's head presenting; made instant arrangements for delivering her, requesting her to keep quiet and not bear down. The pains came on at shorter intervals, the membranes protruded externally—at length got size of child's head, when she felt urgent desire to make water, from pressure on urethra. Could feel the child's head a long time in vagina, but thought it most prudent to leave all to nature as she did not suffer, never groaned nor cried out. At length I scratched through the membranes and the child's head was instantly born, next pain had little effect, so I delivered the child which was asphyxied. The umbilical cord pulsated, so I allowed the infant to remain sometime before tying it—and suffered it to bleed a little, then by slapping and shaking the child he gasped; cried, then stopped. Put him in warm water bath, respiration more free, cries more regular.

Delivered the placenta which was lying in vagina, tightened the binder, found uterus firmly contracted, soft cloths to vagina—all over by nine.

9 P. M. Child again becoming asphyxied ; salt water warm bath :—rubbed him with brandy. Mother remained easy and quiet and disposed to sleep.

Half past 1. Infant died, in convulsions.

Mother has slept ; seems quiet ; pulse 104 ; bowels open ; skin soft ; does not know of the death of her child.

19th June, 4 A. M.	Bowels have been copiously moved twice, more natural in color. She is deeply afflicted by the loss of the infant, which she has now been informed of ; is restless, skin hot, some pain in abdomen increased slightly on pressure. Has made water ; pulse 104.
6 A. M. ℞. Camphor gr. ij. Opii. Pulv. Pulv. Ipecac ā ā gr. i. Potass. Nitrat. gr. xij. ft. Pil. iij. Stat. sumend.	No better. Pulse 104 ; has passed another small motion.
9 A. M. Repet. Pil. Sudor.	Slept an hour ; feels easier, pulse 100 ; skin relaxed ; no pain in head.
11 A. M.	Another motion ; pulse soft 100 ; skin relaxed.
1 P. M.	Pulse 94; sleeps.
6 P. M. Rept. Pil. Hyd. et Ipecac.	Quieter, pulse 90 ; skin soft ; tongue furred at base, bowels purged two or three times, stools chiefly mucus, pain in left iliac region and some griping.
20th, 1 P. M. Rept. Pil. Rept. Inject. Amyli. et Tr. Opii. ʒss.	Appears quiet ; passed one or two small motions without much pain; discharge (lochial) increased, pain in left iliac region worse ; pulse, skin and tongue same ; gums swelled and sore; mouth moist.
2 P. M. Rept. Inject. Amyli.	Has remained quiet and sleeping except interrupted by calls to stool, and griping pain in left side; pulse 90.
21st, 9 A. M.	Remained pretty quiet since last injection ; bowels open two or three times ; motions small, slimy, dark colored.
12 A. M. Ol. Ricin. ʒiij. Terebene c̄. Mucil. Acaciæ ℥ss. Ol. Menth Pip. gtt. ij. Tinct. Opii. gtt. x. ij. Aquæ Puræ. ℥j. ft. Haust. Stat. Sumend.	Has been pretty easy, vulva sponged with brandy, matrass shifted. Pain in side less, lochial discharge more watery, stools consisting of the most thick tenacious mucus ; pulse 86, about twelve motions last twenty-four hours. Repeat farinaceous diet in small quantities.

2 P. M. Took draught; mouth and nasal partition shews herpetic eruption. Thinks it is owing to lavender water of handkerchief, uses handkerchief—gums sore; pretty easy. Breasts more full.

½ past 4. One motion, of green and whitest color(from draught in it)—"*with very little griping*"—pulse 100.

22d. Convalescent.

CASE SHEWING THE GREAT NATURAL POWERS OF PARTURITION—SPONTANEOUS EXPULSION OF THE CHILD DOUBLED. *See* No. 880.

(*By Allan Webb, Esq.*)

Mrs. ——, lady of Captain M. —, H. M.'s — Regiment, was in labor on the morning of October 30. At 6 P. M. the waters broke.

Oct. 31st, 4 A. M.—I was sent for by Dr. Corbyn, the left arm was then entirely out of the os externum, as far as the axilla, somewhat swollen and coldish, but twitched by its own muscular motion, and therefore the child alive.

The mother in good spirits, pulse good, and the pains few and slight. Dr. C. had tried turning, but ineffectually, and determined to wait for spontaneous evolution, of which he had before seen two cases.

This lady it appeared had some difficult labors, whilst in the West Indies;—was subjected to the operation of instruments, from the effects of which she had never recovered;—never been able to retain her urine since. The perpetual escape of which is a source of continual misery.

At 8 A. M. *i. e.* 18 hours after escape of the waters, I proposed again to try and turn. The patient was placed across the small bed upon which she lay, her head supported on one chair, on one side of the bed, her feet covered with the sheet on two others. The rectum had been previously emptied by enemas, I took up my position, kneeling upon a pillow, between the two chairs, having anointed the external parts as well as my own arm and hand.

The os uteri was relaxed, the hand easily glided through, when fairly in the womb it was cautiously pushed on, in search of the feet; scarcely any pains resist; but now and then, the uterus contracted, feeling like parallel cords to or threads wrapped round the arm. I again advanced onwards, but it appeared that the arm had to twist round the body of the child, and the greatest stretch could only reach the knees, which it was attempted to hook down with the fore finger, so as to bring down the feet, but in vain; and now every fresh attempt was attended with pain that made the lady shriek loudly. The pains became strong, a violent expulsive pain thrust the hand out altogether.

The child lay with its head in the right iliac fossa, and its legs high up in the uterus.

We now determined to wait.

12 A. M. Pains much more severe, and with scarcely any intermission;—no change in the presentation, unless it be that the arm is more stiff and swollen;—nurse says quite black.

5 P. M. The shrieks of the poor lady are fearful in each pain;—she lifts the pelvis quite off the bed;—her head is exceedingly congested during the screaming, and the eyes have a very wild look. There is great forcing with the pain, and the shoulder is felt, but not yet through the os externum.

I did not think she could stand another hour of this "tempest of pain," and begged to call in Dr. Wood, of H. M.'s 10th. When we got there at 6, we were desired to wait, the shrieks that could before have been heard across the square had ceased, and presently the nurse came and said, "the child was coming into the world."

When we went in, we found Dr. Corbyn on his knees assisting :—the patient making those strong internal efforts at protrusion, when pain is too big for utterance ;—bending her whole soul and strength to the labor ;—careless of consequences ;—careless of sympathy ;—dashing out her legs, grasping her hands, setting her teeth ; wasting no breath in words.

Examined the situation of the child, watched its progress.

The left shoulder through, quite ;—the other nearly, and part of the neck ;—head arrested by public arch ;—clavicles to be traced. The chest then fairly, out ; but most tempestuous struggles were long and ceaselessly required before the umbilicus could be felt, the child being doubled back completely. At length the breech and legs were born, and all her pains ceased ;—there was no resistance in the delivery of the placenta and the head.

The child was dead. The left arm was swollen, black and in parts denuded of its outer skin to below the shoulder blade. The legs and nates black and discolored. The child was a male, full grown, rather above than under the usual size. It had the mark of a livid weal where the spine had been bent backwards. The umbilical chord was knotted into swelling from blood arrested in its vessels.—*See preparation No.* 880.

The lady did well without one bad symptom.

Notes by Dr. Corbyn.

Since we have been in Fort William three cases of this kind have come under our care ; a very great proportion if we compare it with the experience of Burns who says, " In this city (Glasgow?) which contains not less than 110,000 inhabitants, I cannot learn that more than *one case* of spontaneous evolution has taken place," p. 323.

The first case was in a fine healthy European woman, belonging to the regiment then quartered in the garrison. The waters had been early evacuated and the arm was without the *os externum.* The os uteri dilated and the patient was quite free from pain. It was found by ourselves, Drs. Spens and Martin, that all attempts were ineffectual to turn the child, the uterus being in a state of contraction on the body. We therefore determined to wait patiently—the pains came on, a breech presentation and spontaneous evolution (expulsion) followed.

The next case occurred in the lady of a medical gentleman. When first seen the liquor amnii. was evacuated, the arm was altogether delivered, the os uteri firm and rigid. Here, we again patiently waited till the parts became relaxed, and we found that the head came easily, and we delivered the child.

In both the foregoing instances the children were born dead, *but the mothers rapidly recovered.* One of whom we have since heard of, and also that she has since borne healthy children.

The third case in which recovery was equally satisfactory was the lady of an officer, but as our colleague Dr. Webb took notes containing the particulars, while we were busily occupied, we will give them in his words, as he has kindly allowed us to extract them. (*Vide supra.*)

CASE SHEWING THE PECULIAR POWER OF THE WOMB—CÆSARIAN OPERATION—SPONTANEOUS EXTRUSION OF THE PLACENTA, AFTER DEATH, FROM LACERATION OF THE BRAIN. *See* No. 661.

(*By Allan Webb, Esq.*)

I was called on Saturday evening, August 6th, 1843, to visit a poor woman in Barracks who was reported to be "in a fit."

I found her pale and perfectly insensible, complete resolution of the limbs. Pupils, especially that of the right eye, widely *dilated*, a puffing, whistling, respiration ; skin cold ; and a very feeble irregular pulse. She was a fine looking European woman, far advanced in pregnancy. A puffy tumour, about the size of half an orange, was observed at the back of the head.

On enquiry, I found that there had been a quarrel between herself and husband. She attempted to strike him, he to defend himself, raised his arm, which caught her, and she fell backwards, her head (with this additional impetus, added to her advanced pregnancy), dashing against the stone floor. This happened at two o'clock, and she was at the time insensible, but soon recovered, and was sitting up, and even talking with other women, at four.

She then exclaimed suddenly " I am done for now," staggered in attempting to walk, and when laid upon her bed, again became insensible, and continued so, until I saw her at six o'clock.

I felt certain that effusion was taking place upon the brain, and I thought most likely upon the right side, from one pupil only being dilated.

Seven o'clock, I saw her with Dr. ——, to whom I stated my conviction, that effusion of blood was rapidly taking place. We consulted upon the question of trephining immediately, but decided against it ; concluding, that the extravasation of blood would be found on the opposite side of the skull to that of the fracture—that the fracture might be through the base of the skull, opposite the external bruise, but the effusion would be from the contre-coup either tearing away the dura mater and brain from the frontal bone, or lacerating the substance of the brain itself. This was deduced from the state of the pupils, the pulse, breathing and muscular power. We then resolved, that an attempt should be made to save the child upon the death of the parent, (which we looked upon as inevitable) by performing the Cæsarian section.

I was called away elsewhere, and left orders that her death should be reported to me without any delay. But this order was neglected, and it was only upon my return at 10 o'clock, that I learnt, upon enquiry, that she was dead. Some said half an hour, others an hour, others an hour and half, had elapsed since she breathed her last.

To save further delay, with a common French bistoury which I had in my pocket, and the assistance of Dr.————, I immediately took measures to save the child.

A longitudinal incision through the integuments of the abdomen, in the course of the *linea alba*, exposed the womb, which was apparently warmer than natural. It was opened in the same manner at its upper anterior aspect, where it had nothing intervening between it and the abdominal parietes. But the placenta was attached over the spot which had been cut open, and it bled freely. By passing the hand quickly, lower down, between this and the uterine walls, the membranes were distinguished, ruptured, and the child readily delivered.

The infant was still quite warm, not quite full grown, of a good color. Attempts were made to establish respiration by inflating the lungs through a tube, but these were ineffectual. The child became cold, more and more livid, I desisted, and returned to lay it by the mother, *when I was surprised to observe that the womb from having filled all the abdomen, had so contracted, as to have spontaneously extruded part of the placenta,* even in the manner you may now see in the preparation before you, No. 661.

After an interval of half an hour we proceeded to the

Autopsy.

The abdominal organs were all healthy.

The following were the appearances observed in *the head:*

The head.—This was carefully opened, and the saw carried low anteriorly, *beneath the orbital plates.*

No fracture was found immediately upon the salient part of the occipital bone opposed to the bruise, and very slight extravasation of blood in the pericranium, none at all elsewhere. On *removing the calvarium, and the orbital plates, with the brain and dura mater attached,* the fracture was seen, running through that lower hollow of the occipital bone, which receives the cerebellum, towards the foramen magnum, where it terminated. No effusion of blood, whatever, had here taken place. On removing *the right orbital plate, however, extensive extravasation of blood was found in this situation, underneath the dura mater,* blood also effused in the sulci between the convolutions. A less degree of it over the left orbital plate, and in the sulci between the pia mater and the arachnoid.

The brain exceedingly softened throughout both of the anterior lobes; and an extensive laceration of the substance of the anterior lobe, running right back to the lateral ventricle of the right side. The back part of the brain, and cerebellum, were firm and healthy; ulcerative action was apparent in the pia mater, in the sulcus between the anterior and middle lobes.

I found on enquiry, that she had suffered greatly from headaches for some time before death; and was dreadfully irritable and suspicious in her temper.

It was a great satisfaction in this case, to be able, through the great care observed in removing the parts, to demonstrate this softening as well as laceration of the brain. By slicing horizontally, first the anterior, and then the posterior surface of the brain, and then pressing with the finger alternately upon each, this became abundantly evident. The softened surface became *waving* upon inclining it. Upon this pathological fact alone, the man escaped being committed to trial.

The next remark is only repeating that of M. Toulmouche.—"It proves the independent contractility of the uterus, since this took place after death, with as much energy almost as could have occurred during life." (*See Encyclographie des Sciences Médecales, August* 1842, *p.* 258.) In which the same phenomenon is noticed in a case of Cæsarian operation.—Similar examples of this uterine energy after death are found also in Bartholinus,* who does not however give the uterus credit for this parturient energy, but attributes the birth solely to the independent life, and the struggles of the child—adding pathetically enough—"sed ope omni destitutus, *fractis viribus*, in ipso partu extinctus fuit." Hist. XCIX. Cent. page 305. Edit. 12° Hagæ Com.

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* *Mulier post mortem pariens.*—Uxor Nicolai Cerevisiæ coctoris in Nosocomio Hafniensi extra portam Borealem gravida legitimum gestationis terminum morte antevertit sex hebdomadibus. Illa mense Octobri 1653, defunctâ fœtus utero inclusus mortuus credebatur. Hinc ad sepulturam omnia componuntur, lavatur cadaver, linteamina sepulchralia corpori rigido inducuntur et more funerali arctè cadaveri assuuntur. Sic se-

FATAL ARREST OF CHILD'S HEAD—SLOUGHING UTERUS—EXTRACTION OF PUTRIFIED FŒTUS—HEMORRHAGE—DEATH. No. 602.

(*By Mr. Toussaint, Ceylon Student.*)

Shromally, a healthy looking strong women, about 25 years old, native of Bengal, was brought to the Hospital on the 4th July in a carriage. She stated that the labour pains commenced five days previously to her admission and that it was her full time. For the last two days she felt the child to be motionless and declared that it was dead. She was troubled with a

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pulturæ dicatus dies exspectatur. Post horam à morte 48. intumuit abdomen, thorasque, et ruptæ ferales interulæ corpori emortuo assutæ, et lochia copiosius prodire visa. Attonitæ adstantes feminæ, aliud agentes cogitantesque accurrunt, diductisque cadaveris cruribus ex maternis claustris eluctantem vident puerulum masculum, elegantem omnibusque numeris perfectum, sed mortuum, secundinas verò in via hærentes. Excipitur puellulus, et cum matre in cœmiterio Ecclesiæ novæ suburbanæ sepelitur. Actam ita esse rem maritus defunctæ adhuc superstes retulit, fidem fecerunt mulieres honestissimæ præsentes, Nosocomii Præfectus confirmavit, omnes à me diligenter quæsiti et examinati, denique M. Torchillus Tullius Diaconus ad Templum B. Virginis, qui funebram orationem sacram habuit, uberius testabitur.

Memoriæ posterorum digna historia, et oculis lectorum. Mirum profectò vitam embryoni spacio duorum dierum totidemque noctium defuncta matre fuisse superstitem. Augent admirationem compacta crura, clausæ viæ uterinæ, et lintea sepulchralia cadaver constringentia. Cæterum robustum fœtum fuisse oportet, qui matris vita et actione cessante solus partum promovere potuerit et terminum consuetum anteverte. Alioquin in puerperis defunctis consilium *Caroli Stephani* 1. 3. de Diss Part. c. I. sequendum est, ut matre in agone constituta, aliqua re inter dentes interposita apertum morientis os servetur, et obstetrix nunquam ab ostio vulvæ manum dimoveat, et incurva ac diducta mulieris femora, quanta potest diligentia contineat. Nulla talis cura puerulum nostrum adjuvit, solus et partus et puerperæ et obstetricis munia implevit, sed ope omni destitutus, fractis viribus, in ipso partu extinctus fuit. Mulierculæ nostrates superstitiosæ, etiam fœtum in utero mortuum defuncta matre necessariò sua sponte proditurum credunt, afferuntque experientias, quibus nolim fidem adhiberi Hinc cum cadavere puerperæ in arca ferali includunt forficem, acus, spongias, aliaque puerperii instrumenta, quibus credunt prodituro infanti opus esse.

Insolitus partus ferè exemplo caret. Aliqua similia afferam, ut lucem huic historiæ fœnerer. *Sphynx* Theologico-Philosophica c. 17. quendam narrat, cum mortuæ uxori pararet exsequias, extinctæ matris ab utero, subitò emisse claro vagitu salvum et in columen pusionem vidisse egredientem. *Io Mathæus* de uxore Simonis Kreuteri civis Weissenburgensis similia refert. Hanc enim mortuam nonoque mense gravidam quum adstantes fœtu non extracto in sepulchrum intulissent, elapsis aliquot horis vagitum ibi exaudivere, occurrentesque ilico aperuerunt, inque eo matrem quidem mortuam adhuc, sed ad ejus pedes fere devolutam filiolam vivam, optimè valentem, et diu superstitem. Hispani milites, ut scribit *Eberus*, Anno 1567, inter Zutphaniam et Daventriam maritum cum uxore prægnante suspenderunt. Uxor quum pependisset per horas quatuor, totidemque esset mortua, gemellos vivos peperit. Eodem attestante, Madriti matrona ex familia D. Francisci Lasso post tridui agonem mortua busto inferebatur. Post aliquot menses busto iterum aperto, cadaver repertum fuit eodem loco, sed in dextro brachio infans mortuus jacebat. *Salmuth* Cent. 2. Obs. 36. ter vidit puerperas mortuas enixas esse fœtus, et Obs. 1. ejusdem Centuriæ interfectam mulierem refert gemellos peperisse. Me Leydæ 1638, presente gravida quædam ipsam se suffocatura in mortis angustiis fœtum exclusit.

bloody discharge from the vagina, which at this moment had assumed a most disagreeable and offensive odour. She was treated by the natives. The efforts of the uterus had entirely ceased, the head of the child had remained impacted in the perineum for the last two days ; she was very much exhausted.—Abdomen enormously distended, with a very anxious countenance, and profuse perspiration ; pulse small but quick. Dr. Goodeve arrived an hour after, and extracted the fœtus by the instruments, having previously applied the forceps without effect, the parts being mortified, no firm hold could be obtained ; the secundines remained attached, and with little force, the whole was extracted ; no movements of the uterus was observed though she took repeated doses of the decoction of ergot of rye. A gush of blood followed the extraction of the placenta which amounted to no less than a pound, speedily followed by another to a similar extent. All our efforts to stop the hemorrhage or to produce contraction of the uterus were found unavailing, the hemorrhage followed at intervals, but was not to that alarming extent as before. The woman began at length to sink, her pulse became thready, and cold perspiration was found to cover the whole body. A bandage was put tightly round the abdomen, ice-cold water applied to the parts, and she was ordered to take half a drachm of laudanum, one ounce of the decoction of ergot of rye, with two ounces of brandy every hour, which produced no effect, save that of stupefaction. The uterus here remained in an evident state of paralysis, for no change was observed in its size, after the fœtus and the secundines had been extracted. The pulse gradually disappeared, and she died at five o'clock P. M. having remained in the hospital seven hours. The extraction of the child was followed by copious and involuntary evacuations from the bowels of an excessively offensive character, and the discharge from the uterus was equally so ; the fœtus was immensely distended ; almost to three times the actual size, which circumstance led us to suspect at the time of birth, that it was a monster. The body of the woman was left in the hospital during the night and removed early in the morning, during which time the abdomen remained distended.

NATURAL OBSTRUCTION TO BIRTH—DEATH OF MOTHER FROM INFLAMED UTERUS. No. 603.

(*By Mr. Toussaint, Ceylon Student.*)

Eliza Thomas, a thin woman, aged 15, was admitted on the 6th of Augus for extreme tenderness about the uterus, suppressed lochia, intense thirst, quick pulse, costive bowels, and a very hot skin ; says that she was delivered of her first child five days ago with difficulty, as the child though born alive had been impacted in the pelvis for about fourteen hours. She was treated as usual and the lochial secretion appeared for a few days, and subsequently large quantities were discharged from the uterus, and she died on the 15th of August. On examination (*post mortem*) the uterus was found to be enlarged, soft, and inflamed on its outer surface, with adhesion to the adjacent parts, the inner surface consisted of a mass of slough with an enormous quantity of greenish fœtid matter, the upper portion of the vagina was also in the same sloughy state. The peritoneum vascular and discolored in several parts, ovaries healthy. The brain contained a large quantity of serum particularly on the surface of it. Vessels congested.

FATAL OBSTRUCTION TO BIRTH—IMPACTED HEAD—EXTRACTION OF PUTRID FŒTUS, HEMORRHAGE—SLOUGHING UTERUS, AND LABIA—DEATH.

No. 574.

(*By Mr. Toussaint, Ceylon Student.*)

The following is a case illustrating the peculiar morbid appearances, where the head remained impacted in the perineum for the space of eighteen hours, and showing the necessity of early assistance in all cases in which the head exercises an undue degree of pressure.

A plethoric short woman, named Thara, aged 20, was brought to the Hospital on the night of the 12th August for impeded labour; states that the pains first commenced forty-two hours previous to admission. At this moment the uterine action is suspended, though the greater part of the head of the child is presenting without the membranes, and she is not conscious as to the time when the waters escaped. The head has remained in this position impacted for the last eighteen hours perfectly motionless. The head of the child is emphysematous, and a most disagreeable odour was perceptible from it.

We administered repeated doses of the decoction of ergot of rye, and before Dr. Goodeve arrived a sensible action of the drug was perceived by a slight renewal of the pains. The child was extracted with extreme difficulty for the passage was dry and rigid, the uterus contracted slightly after the extraction of the placenta, and great discharge of blood followed. The mother suffered little during the operation, and the discharge from the bowels was very copious, and exceedingly offensive, that from the uterus was of a dark color, and of insupportable fœtor. She appeared much exhausted, pulse quick, and small, tongue foul.

To have a little brandy and water; 10 grains of Calomel with 20 grains of Dover's powder at bed time, and Senna-mixture in the morning.

August 13th.

Blister to uterus, 5 grs. Calomel, 5 grs. Antim. powder with 10 grs. Dover's powder every third hour. Friction of mercurial ointment to extremities, and soda drink during day.

Uterus much enlarged and very prominent. Lochial discharge continues; pulse quick, slight heat of skin, bowels opened freely three times by the senna mixture; great tenderness on pressure over the abdomen, complains of intense thirst.

14th.

Calomel, 2 grs. Antim. powder, 2 grs. Dover's powder, 5 grs. three times a day, also 3 grs. Quinine every 4 hours. Cont. mercurial ointment and soda drink.

The uterus was found to be in the same distended state as before, hard and extremely tender on pressure; lochial discharge much diminished, the inner surface of the vagina and labia is much inflamed; mouth slightly affected, bowels opened twice since yesterday, pulse quick, countenance anxious.

15th.

Opium 1 gr. Carbon. Ammonia with 2 grs. Quinine every third hour, also two ounces Port wine every 4th hour; the soda drink to be continued.

Her bowels were opened, three times since the last report, tenderness and distention of the uterus continue, labia much swollen, inflamed, and a portion sloughing; lochia suppressed, and a considerable discharge of pus from the uterus; mouth sore, pulse very quick, but no great heat of skin, she was very restless last night.

August 16th. Cont. Bowels opened, countenance very anxious, labia extensively swollen, and sloughing rapidly ; pulse quick ; discharge of pus continues from the uterus, troubled with hiccup since last morning, uterus much enlarged, and extremely tender to the touch ; spent a restless night.

17th. Cont. She is sinking, hiccup very distressing, pulse thready, passed two stools since yesterday, discharge of pus great, uterus continues distended, hard and painful.

18th. Cont. Mortification extending rapidly and the labia much swollen, pus continues to discharge from the uterus, pulse thready about 130 in the minute, profuse perspiration.

She continued sinking and died on the 19th.

Autopsy.

The body was examined about six hours after death. Uterus enlarged, and several impressions of the intestines on its surface. The inner surface was a mass of slough with a quantity of purulent fluid in the vagina ; and the labia were equally mortified, and the bladder and rectum were adherent to it. Peritoneum vascular, ovaries much enlarged and partly mortified, with adhesion to the surrounding parts.

CASE OF CRANIOTOMY.

(By Allan Webb, Esq.)

Was called upon by Mr. Wambeck to see a poor Native woman, just admitted into Hospital, of whom he greatly feared that she would die if not immediately succoured. She had been many days in labour, and it was apparent from the stench that proceeded from her, that the child had long been dead.

The poor woman felt coldish, with scarcely perceptible pulse, wet with perspiration, most anxious face, and distressed with hiccup.

The case being so urgent, and Dr. Goodeve not in the way, I undertook to deliver her at once by diminishing the child.

The abdomen was enormously distended. I believe the womb had suffered passive inflation from the pent-up putrid gas, for a quantity issued out. With a common scalpel I divided the skin and membranes of the child's head between the bones, a quantity of horribly fœtid brain escaped, and air escaped from the womb, upon the head collapsing away from the os-externum.

With the crotchet, guided by my finger, I passed through the remaining brain, and fastened upon the first vertebra of the neck, and made steady traction till the child came away. No blood followed. No action of the womb. The woman breathed more easily for the relief afforded to the diaphragm. The fœtus was very putrid, enormously distended. *See* No. 602.

The mother also was too far gone for human aid, and died in the course of the day.

CASE OF FATAL HEMORRHAGE—PLACENTA RETAINED AFTER BIRTH OF CHILD.

(*By J. McPherson, Esq. of Howrah.*)

Mrs. N., aged 44, of nervous temperament, mother of five children had suffered in most of her confinements from hemorrhage, and was threatened with it about the sixth month of her present pregnancy.

Was delivered without medical aid, after a short and easy labour at 11 P. M. The placenta not coming away, I was sent for about 12 P. M. but was prevented from coming till 1 A. M. when I found her excessively restless and excited, not remaining for a moment in one posture, and snatching at every object in her neighbourhood. Pulse barely perceptible, no contractions of the uterus, from which large masses of clots issued every few minutes with a gush of blood. Stimulants were given without loss of time, and the placenta, which was found to be adhering, throughout nearly the whole of its extent, to the fundus and posterior wall of the uterus, was removed, with some difficulty, by the introduction of the hand. After this the uterus contracted pretty well, and the hemorrhage ceased almost entirely.

She continued nevertheless pale, weak and pulseless, and in a state of constant jactitation, and in spite of the continued administration of the stimulants, she became quite exhausted, her breathing became laborious, and she sank about 3 A. M. into death.

CASE OF PLACENTAL DELIVERY.[1]

"I, Henriques Cuitano Victor de Fiquerido, physician, Macao, China, testify that Mrs. Josepha Botelho, wife of Captain Braz Joaquin Botelho, in the sixth month of her pregnancy, began to be troubled with hemorrhage from the uterus, which was relieved from time to time by appropriate remedies, until the expiration of the ninth month. On the evening preceding her delivery, she became extremely weak, and had frequent attacks of syncope, but was brought to herself before bedtime, and remained in a composed state until five o'clock the following morning, when labor-pains began, and continued to increase till ten o'clock. The pains were at this time urgent, and a large gush of blood followed one severe pain, and with this discharge the placenta was also cast off, the fœtus still remaining in utero. This accident being new to me, and likewise to the midwife in attendance, I thought it my duty to consult a more skilful physician, and immediately ran off to Dr. Pearson, then senior surgeon to the British Factory, to whom I stated the case, and requested him to accompany me and use his endeavour to save the woman ; but while explaining the case to Dr. Pearson, I received a message from the midwife to say, the child was born, but without any appearance of life. I returned to my patient without Dr. Pearson, and found a dead infant, but the mother free from syncope ; and I have much pleasure in stating that she soon recovered, and has since borne two children."

Macao, 13*th November*, 1833.

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[1] Trans. Medl. and Phys. Soc. Calcutta.

CASE SHEWING PREVENTION OF UTERINE HEMORRHAGE. No. 175.

(*By Allan Webb, Esq.*)

Called to Mrs. L. (fourth child ;) all her previous labors *very quick* in birth of the child, but complicated with retention of placenta, and dangerous flooding always followed.

4 P. M.—When called to her on finding head presenting and labor steadily progressing through second stage, resolved to use all reasonable means to prevent too sudden expulsion, and desired her not to bear down, resisted the head, and let two or three strong pains exert their full influence and *gradually* propel the body. Had bandage instantly tightened by assistants by whom continual steady pressure was kept upon the uterus (outside) whilst I attended to the child, which was a fine boy. After securing infant, I myself took turn in supporting uterus, felt it contracting, and gave Tinct. Opii. ʒj.

In twenty minutes afterwards, pains again came on with bearing-down efforts, still supporting uterus outside, and making moderate traction upon the chord ; delighted to find the placenta coming away. Again steady pressure combined with pushing placenta upwards, excites pain, which was then assisted by traction and the placenta was expelled in about ten minutes with clots of coagulated blood. But still there was steady traction required to bring away the membranes. There was more oozing of blood in a small steady stream than I ever observed before, for two hours afterwards.

But I found that the uterus had firmly contracted and took care to have the support of hands besides bandage for two hours afterwards, and then left her well, after prescribing Tinct. Opii. m xl. (fifty more taken in night.)

June 19th. Continued quiet all night.

20th. Quite well, nursing her child.

CASE OF PROTRACTED PREGNANCY.

(*By K. W. Kirk, Esq. M. D. Asst. Surgeon, Bundlekund Legion.*)

The patient was a young Native woman, inclined to plethora, of inactive habits, and this was her first confinement, which she warned me would take place, more than two months previous to the event : my impression in the interval being that she was at error, in her reckoning, which in the inexperience of a first pregnancy is a common circumstance.

This is an interesting case in a medico-legal point of view, adding one proof more of the inaccuracy of the law relating to the duration of pregnancy, which fixes the range thereof from six to ten calendar months.

Had not the fluid contents of the uterus escaped, it is probable that the pregnancy would have continued longer even than it did, labour not having come on till after this fluid was expelled and being what nurses call " dry." Nevertheless it advanced rapidly at first and continued so till the fœtal head became so locked in the pelvic bones, that further progress ceased, though the efforts of the mother were most powerful.

The position of the head was perfectly natural, and the conformation of the patient normal, the difficulty was therefore solely from the increased size of the fœtal head, and the unyielding nature of the bones at that advanced nativity. The head neither advanced during a bearing-down effort, nor did it recede during the absence of it. It moreover could not be moved on itself in the slightest degree.

After a short delay I explained the circumstances to the relatives, and obtained their sanction, and that of the patient, to the use of the "Mechanical hand." The forceps I had, were clumsy, old-fashioned and unnecessarily long, and the upper blade only was used (mother lying on her left side, with which it required the whole of my strength to produce the slightest motion at first, but when that was once established it was supported by a tractive pressure of the fore finger of the left hand on the other, until the head had descended very considerably, the face having in the operation revolved to the hollow of the sacrum, when the patient exclaimed that she felt much relieved and that the child was moving bodily within her. The blade of the forceps was now withdrawn, and the efforts of nature proved sufficient for the rest, though the sacro-sciatic ligaments formed a second serious obstacle.

After thirty-seven hours of severe labour a still-born female child was produced, and as it lay was twenty-three inches and three quarters long, having breadth and developement in proportion, and had I stretched the limbs it would have measured more even than this, whereas children of common size are at birth seventeen or eighteen inches ; this was therefore doubtless retained in utero, so far beyond its time, that it attained to six inches taller than usual, having proportional breadth, and developement, and increased firmness of the bones especially those entering into the formation of the skull, rendering labour so extremely difficult that nature alone was insufficient to effect it.

Being at present in camp and unable to refer to many authors on the subject I may say that as far as I remember, the above is the most evident case of protracted pregnancy I have heard of, and I am the more confident in this from the perusal of a paragraph on the subject, at page 473 of the Medico-Chirurgical Review for April, 1843. Where an array of names appears to support and another to discredit the idea of protracted gestation, Dr. Montgomery mentions two cases in that place, in one of which gestation was prolonged for eleven days, and in the other for a week and two or three days at least. But in the case I have here recorded, no one can question the fact of its being protracted for upwards of two months beyond the usual period, when he takes into account, the period when the parent expected, that her "full time should be accomplished," the circumstances attending her confinement, and the advanced developement of her offspring.

PREGNANCY MISTAKEN FOR DISEASE OF THE OVARY. No. 156.

11*th August*, 1840.—Sent for by Dr. —— to attend and give my opinion as to pregnancy existing or not in a lady, the Hon. Mrs.——. Was told she had suppression of menses since December, i. e. nine months and occasionally had headaches, for which Dr.——had ordered hellebore in large doses, to act powerfully, on the bowels, believing his patient to have disease of the ovary. He had not examined, neither abdomen externally, nor by the vagina internally ; this I determined to do, and to employ also the stethescope for investigation.

The abdomen generally was enlarged and soft, without pain on pressure. No tympanitic sound on percussion. On making the patient lean forward no sound of fluctuation perceived. On placing her in a recumbent posture, the shoulders elevated, the knees drawn up; and passing the expanded hand from pubis upwards, steadily bearing upon the abdomen; a round, large, rugose tumour was felt; still firmer pressure upon it, seemed to detect a hard unequal substance *within* it. The stethescope applied over the space this tumour occupied, gave quite distinctly the bellow's sound of the maternal arteries, synchronous with the pulse. The fœtal pulsation I could not make out in this case, although I have, in others, repeatedly detected the child's heart beating much quicker than the mother's.

Laying the patient upon the side and introducing the fore finger of right hand into the vagina, with the left upon the abdominal tumour, I pressed this down upon my finger, I then felt that the mouth of the uterus was slightly dilated, the neck seemed almost effaced. Passing the finger between the womb and front of the pelvis (pubis) it seemed heavy and hard, but the mouth soft and natural. Passing finger into the mouth, and pressing the tumour down, something hard, like the child's head, felt between membranes, struck the finger, and seemed to start up again into the waters of the membranes.

Deductions.

The position, form, and feel of the tumour, the "bellow's murmur, synchronous with maternal pulse," the unequal substance felt in the tumour outside, the ballotement felt inside, the effacement of the neck of the uterus, the expanded os uteri, the hard substance bounding from the finger, are all positive signs of pregnancy.

Opinion.—She is pregnant, about four or five months.

Says "some hard substance is shifting about," sometimes on one side, sometimes on another, most evident in the early morning. To examine this phenomenon called next morning, *i. e.* August 12, at 8 A. M. Patient in bed, again felt uterus, struck it with my hand, child answered distinctly with a kick; struck again, again answered; patient did not feel it, would not believe it, till going through the same motions with her hand, she was convinced.

Ordered—To omit hellebore and take mild pil. aper. when wanted. Omit horse exercise.

N. B. This lady, mother of two children had never felt sickness, enlargement of breasts, nor any of the more common effects of irritation of rectum and bladder, nor was she conscious of having quickened, which she must have done.

23*d.*—Child's motions distinctly observed!

Result.

Was delivered safely of a fine boy within four months afterwards.

The instance now given was the more impressive to me, from the rank and position of the lady. The mistake in diagnosis was a consequence of neglecting to ascertain the actual facts. I found, indeed, that there was some excuse for this omission in the peculiar character of the patient. But it is not always that we must expect acquiescence in measures which are absolutely essential to a sound medical judgment, leading, as in this instance it most likely did, to the preservation of mother and child too.

The diagnosis of pregnancy is an important practical point and one occasionally of much anxiety to ladies going home, a five or six months' voyage.

The following case will shew some rather whimsical results of error in diagnosis.

ABORTION AT SIX MONTHS FROM MORISON'S PILLS.

I was called up, one night by a young Ensign, who stated that his wife was exceedingly ill; and although it was rather the province of his own regimental Surgeon, he was so urgent with me, that I set off forthwith, in a very stormy night. He informed me by the way, that his wife had suffered some indisposition a few days back, and by the advice of a civilian, an enthusiastic admirer of Morison, she had been induced to take some of the celebrated Morison's pills. That this night the same pills were again resorted to when a little pain came on in the *stomach*, and as it increased, a greater quantity of them, in warm ale, were swallowed, to relieve it. But the more pills, the more pain, until this terrible '*stomach-ache*' could be borne no longer, and we were obliged " to send for the doctor."

When I entered the house, without even seeing the patient, I said upon hearing her cries " Mrs. —— is in labour."

" Oh no ! Dr. —— assured her, that there was nothing of that kind to expect only three days previously."

The lady also persisted in this, and in refusing an examination, so that I took my leave, declining any further responsibility. But the pain was an urgent persuader ! I soon returned back.

I examined and found as I expected the child's head in the vagina. " How very odd !" was the remark. She had no nurse,—no ' flannels,' no ' baby linen,' nothing ready, because the doctor assured them that there '*was* nothing.'

The child, of six months, died soon after birth, a victim to Morison's pills, and the officious zeal of the civil friend alluded to. See No. 343.

CANCEROUS POLYPUS OF THE UTERUS—REMOVAL BY LIGATURE—TRANSFER OF CANCEROUS DISEASE TO STOMACH AND DUODENUM—DEATH.

Nos. 660, 687, 689.

(*By Allan Webb, Esq.*)

Mrs. G——, residing at Alipore, consulted me, first in November, 1842; she had been ill ten months under Dr. Spry's care with diarrhœa and profuse and bloody discharge from the vagina, and latterly great difficulty in urinating; this I found to proceed from a polypus, which was never before suspected. It projected from the neck of the womb low into the vagina, the neck of the womb was slightly hardened, the polypus larger than an egg.

A few days afterwards I tied it, with Mr. Corbyn's assistance; the wire broke, I tied it therefore with string, which she tightened daily, by means of a quill confined after tightening by a bandage round the loins.

Polypus came away, in ten days,—is in College Museum. No. 660.

She got fat and well; about six months afterwards, was engaged to be married: when pains in the groins and back came on, constant sickness and diarrhœa supervened, miserable emaciation, with inability to retain food, even a few grains of rice, which she said, "went round by her back and right side," and were then rejected with quantities of ropy tenacious mucus.

She died on Good Friday of inanition, accelerated by diarrhœa, after having become reduced to a mere living skeleton.* For six weeks previous to her death she could not retain food longer than an hour, and latterly not at all. I had long predicted cancer of the stomach.

Treatment. *Alteratives* of blue pill, &c. *Tonics*, as Quinine. *Sedatives*, as Opium and Hydrocyanic Acid, &c. with Hydriodate of Potass and Sarsaparilla.

Autopsy six hours after death.

General Appearance.—Body very much emaciated.

Head.—Not examined.

Chest.—Healthy, heart very small, lungs pale.

Abdomen.—Liver pale, intestines transparent, and stomach empty. Submucous tissue interspersed with carcinomatous deposit, hypertrophied towards pylorus, puckered up, hardened, covered with most tenacious mucus; the muciparous glands greatly developed just beyond the pylorus; it was there softened, and I thought the mucous tissue eroded. Transverse portion of duodenum healthy, but descending portion deep red or madder brown colour, and three times the thickness of any other part of the small intestines, contrasted so strikingly by colour, for the small intestines were icy looking and pale in appearance. Could not well make out scirrous tissue with naked eye, but with the lens its white and glistening fibres were very distinct. No. 689.

Pelvis.—Uterus, (No. 687,) dark madder-brown at its mouth, and a still darker mass was seen projecting. Its body hard, ovaries atrophied, peritoneum like parchment, with red carcinomatous depositions in many parts within the pelvis. Other viscera healthy.†

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* See p. 318.

† INVERTED WOMB MISTAKEN FOR POLIPUS AND CUT OFF BY LIGATURE.

By Dr. *Esselman* (*American Journal of Medical Sciences*, January 1844.)

" A lady, 32 years of age, had been in bad health ever since the birth of her only child twelve years previously. She was at that time attended by an old woman, had suffered severely from flooding, and never perfectly recovered. She was constantly annoyed by bearing-down pains, pain and weakness in the back, the pain stretching down the thighs. Every now and then she suffered from severe uterine hemorrhage, and at other times was subject to *fluor albus.* For these complaints she was subjected to various medical treatment, some considering her disease to be prolapsus of the uterus, others polypus. In the belief it was polypus, from finding a rounded tumour apparently projecting from the *os uteri*, and after consultations with several practitioners, Dr. Esselman applied a ligature to the projecting tumour, having two hours previously administered a large draught of camphor, laudanum, and hartshorn. The tightening of the ligature excited such intense pain that the draught required to be repeated. For the first five hours thereafter her strength was quite prostrated, and her pulse barely perceptible. Reaction then slowly set in, she became more composed, and passed a tolerable night. The ligature was tightened every morning for eighteen days, at which time it came away, when, instead of proving a polypus, the tumour was found to consist of the uterus itself. The cure proved tedious, as the vagina was ulcerated, and poured out a copious sanious discharge. She recovered, however, under the use of generous diet, wine, and quinine, taken internally, and injections of chloride of lime and nitrate of silver to the vagina. For twelve months after her recovery she required frequent blood-lettings and active purgation to relieve headache, vertigo, and general plethora, occasioned, it was conceived, by the premature suspension of the catamenial secretion."

Remark.

Cancer shewing itself in the womb is rarely confined to that organ alone, I have seen the liver and urinary bladder covered also with carcinomatous depositions when the womb had been nearly destroyed.

FACE PRESENTATION—TURNING—PUERPERAL FEVER.

(*From Register of Dr. Goodeve's Hospital.*)

Komul, a Hindoo woman, aged 35; admitted in the venereal ward for chancre, of about a month standing. She states that she is in the family way (seven months.) The ulcers in the vagina were in a sloughing state at the time of her admission in consequence of her constitution being in a debilitated state. She was cured by the usual remedies. From this time she was perfectly well till the 27th October, (morning,) when labor pains commenced. The pains at first seemed spurious, but at 3 P. M. a thick ropy discharge was observed, an examination was made, and it was found that the os uteri was dilated and dilatable. The pains were not strong; in this state she continued till 12 P. M. when another examination was made, and it was found that the presentation was not a natural one, but a face presentation.

On the morning of the 28th, membranes burst, and the face was felt in the canal. In this state she continued till the evening, when the operation of turning was performed, and a dead male child was brought out. After quarter of an hour, after-birth expelled.

29th. Hirud. xvj. to the uterine region. Calomel grs. viij. D. P. grs. v. at even. A warm Poultice to the abdomen.	Complains of tenderness in the lower part of the abdomen; tongue furred; bowels confined; made water once, discharge continues.
30th. Hirud. xx. to the uterine region. Calomel grs. v. D. P. grs. iv. Tartar Emetic gr. ¼ three times. Cont. the Poultice. Injection of warm water in the vagina. Senna and Salts just now,and repeat every four hours.	Pain not relieved by the leeches; felt feverish last night; bowels confined; tongue furred; discharge scanty; skin hot; pulse quick and full.
31st. A blister to the uterine region at night. Mercurial ointment to the groin and axilla. Omit senna mixture. Cont. Med. Inject chloride of lime solution in vagina.	Bowels moved freely by the senna mixture, pain somewhat relieved. Felt feverish last night; pulse quick, about 120, discharge fœtid. Sleep disturbed; tongue covered with a black fur.
November 1st. Omit blister and cont. all the Med. Carb. Soda grs. xx. twice a day.	Passed about eight stools; pains much relieved by the application of the blister; tongue continues in the same state, pulse quick; slept little last night; discharge fœtid. Had no fever last night.

Nov. 3rd. Omit Calomel. Cont. inject. Hydrarg. C. C. grs. v. Quin. Sulp. grs. ij. P. Doveri grs. v. Carb. Soda grs. x. every 4 hours.	Passed about twelve stools, discharge getting healthy ; tongue rather clean ; slept little and in other respects much the same.
4th. To take 100 drops Laudanum and have injection of Acetate Lead and Opium every hour.	She is troubled very much by the purging and in other respects much better.

She got perfectly well and was discharged from the hospital on the 10th February, 1842.

SLOUGHING UTERUS—DYSENTERY—DEATH.

(*From Dr. Goodeve's Midwifery Hospital Register.*)

Taramony, a Hindoo female, aged 24, was admitted into the Midwifery Hospital on the 15th of August, 1842. Pregnant five months. She continued healthy during the whole period of her pregnancy.

Labor commenced on the 4th of January, 1843, and continued up to the 7th of that month, the membranes burst and the head of the child was seen in the perineum. The pains were not at all strong ; in order to remedy this malady, tinct. opii ʒjs was administered but to no effect. On the morning of the 7th instant ergot of rye was administered, but to no effect. At last forceps were applied and a dead male child was brought out.

After quarter of an hour, after-birth was expelled. A bandage was applied to ensure the uterine contraction.

January 8th, 1843. Leeches xx. to abdomen Bran Poultice. Senna Mixture repeated every four hours.	She is well this morning ; free from pain ; slept well last night. *Even.* Fever came on.
9th. Calomel grs. viij. D. Powder grs. iv. Emetic Tartar gr. ¼ to be given after she is purged and repeated every four hours. An injection of warm water into vagina.	She had fever last night which still continues ; there is pain in the abdomen ; had no sleep ; pulse quick and strong ; lochial discharge continues, but fœtid. She is in fact threatened with puerperal fever.
10th. Omit the leeches, continue the Bran Poultice, and injection of warm water, and repeat powder at night.	Passed thirteen stools since yesterday and is somewhat relieved ; there is no pain ; skin cool ; tongue clean ; pulse steady and soft ; the discharge fœtid.

Jan 11th.
Leeches xij. over the uterus, to be followed by a blister.
Cal. grs. viij.
P. Dov. grs. iv.
Ant. Tart. gr. ¼.
Quinine grs. ij. every four hours.

Calcis Chlorid. ʒi.
Aqua. Tepid. Oj. an
Injection to vagina.

She had violent fever last night, there is pain in the abdomen though she denies it; skin hot and dry, tongue white and furred; pulse quick (about 130); no sleep last night; discharge continues fœtid; bowels confined; the countenance anxious.

12th.

No change.

Dress blister with mercurial ointment, rub it in axilla and groin, continue injection. Apply hot water bottles to extremities, and continue the powder.

13th.
Soda Carb. ex. grs. x. added to the powder.
Omit Calomel.
Cont. injection.

Feels rather better this morning.

14th.
Hydr. c. Creta grs. viij.
P. Dov. grs. iv.
Quin. Sulp. grs. ij.
Soda Carb. ex. grs. x.
ft. P. i. every four hours.

Very much purged last night; skin cool; tongue clean; pulse soft and feeble.

15th.
Add grs. x. of Quin. to the P. and continue injection.

Passed many stools of a dysenteric nature; she has no fever; character of discharge same as before; in other respects much the same.

16th.
P. Creta C. c. Opio
P. Kin. C. a a grs. x.
P. Ipecac. Comp. grs. v. thrice daily.
Tinct. Opii. 100 drops
Aquæ f. ℥i. to be injected into rectum.
Ammon. Carb. grs. x.
Mist. Camph. ℥i. every two hours.

Bowels still moved many times since yesterday; pain in the abdomen increased on pressure, which she says is caused by the leech bites; in fact she is getting worse and worse.

17th.
Omit all the Med. except Carb. Ammonia and Camphor mixture.

Getting worse and worse daily. Passing a great number of stools; pulse very very feeble; body cold and clammy; tongue covered with black fur.

22d.
Cont. the Med.

Very bad this morning; delirious; pulse imperceptible; skin cold; eyes sunk. Sinking fast.

Jan. 23d. Fixed state of the eyes, respiration hurried ; cold extremities ; clammy sweats, involuntary discharge of fœces. At 3 P. M. died.

Post Mortem Examination.

The uterus was not contracted to its natural size ; its vessels were much dilated, the mucous membrane was red and was covered with large sloughs.*

A CASE OF INDUCED ABORTION, AND A CASE OF FALLOPIAN TUBE CONCEPTION.

(*By John Macpherson, Esq., Civil Assistant Surgeon, Howra.*)

In the last week of February, 1845, the bodies of two native women who had died suddenly were sent to me for examination.

A. dead for three days, body in an advanced stage of decomposition, was said to have been recently delivered, and on her death-bed to have accused the man with whom she cohabited of having caused abortion.

There were no external abnormal appearances. On laying open the abdominal cavity, the viscera at first sight appeared healthy, but on proceeding to examine the contents of the pelvis, the intestines were found to be in a state of acute inflammation, with shreds of lymph freely effused ; and floating among them, and lying transversely, was found a piece of stick, about 5½ inches long, of about the thickness of a small quill, and with one end slightly sharpened. On examining the uterus its fundus was discovered to have been perforated by the stick, a small hole, large enough to admit of its passage, remaining pervious. The contents of the uterus had been recently evacuated, its coats were dilated to one half more than its normal size, and the spot, to which the placenta had been adherent, was plainly recognizable. The left ovary contained a distinct *corpus luteum*, with its cavity still open, and which seemed to indicate about seven months' advance in pregnancy ; no laceration of the os uteri was discoverable : and it was not known what had become of the fœtus.

Many cases are on record in Europe of abortion having been caused by the introduction of pieces of stick into the uterus, (a very common mode in India of procuring abortion,) and of their having been found after death, sticking in its walls, but cases such as this, in which a piece of stick has been actually forced through into the abdominal cavity, must be rare.

As one end of the stick had the look of having been broken off, it may have originally been double its present length, and have been broken by the violence employed in introducing it. The evidence went to shew that no one, but the man with whom she cohabited, could have had access to her, and it is not to be supposed that she could of herself have used sufficient force to pierce the walls of the uterus. Its passing so exactly through the axis of the uterus must have been accidental. From the native accounts it would seem that death followed in about eighteen hours after the receipt of the injury.

B. dead about twelve hours, reported to have received a beating from her husband, and to have died soon afterwards of cholera.

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* I have said that there are no post mortem records in the Midwifery Hospital register. But this one had escaped my search ; it is very imperfect. From what I can learn No. 794 is the preparation belonging to this case.

One or two slight contusions were observed over the ribs ; body that of a healthy woman. On opening the abdomen it was found to be quite full of very dark blood, chiefly fluid, but mixed with coagula ; the intestines rather pale : on proceeding downwards, the whole cavity of the pelvis was found occupied by a large and pretty firm coagulum. The bleeding was ascertained to have proceeded from the rupture of the left Fallopian tube. About a hand-basin and a half full of blood was removed, but no ovum was found. The uterus was then removed, and on examination presented the following appearances :

Os tincæ and *cervix* firmly agglutinated by the secretion of the nabothian glands, *body* perhaps a trifle larger than in its natural state, interior slightly vascular and lined with jelly, no trace of a *decidua.* A bristle was passed without difficulty along the left Fallopian tube, for an inch up to the wall of a tumor about the size of a pigeon's egg, whence the hemorrhage had proceeded. The coats of the tube forming the walls of the tumor were much attenuated and shewed a purple discoloration. There was a small rent in them posteriorly, but not large enough to admit of the passage of the point of the little finger. The interior of the tumor was occupied by a firm coagulum, and no trace of the recent attachment of the ovum to it was observed.

Right ovary externally wrinkled, containing the cicatrices of two old corpora lutea, one, though not the size of a millet seed having distinct central cavity. *Left* ovary full, and vascular at two points, where the peritoneal covering was tense and shining: one or two seeming holes and cicatrices, but none pervious to a bristle. It contained two corpora lutea, one old, one recent, of the size and shape of a small bean, and its yellow matter having a slightly radiated appearance, with the lining membrane of the central cavity highly vascular, and probably about one month or five weeks old.

The consideration of the question how far the hemorrhage may have been accelerated by the use of violence, is of some interest in a medico-legal point of view, and as the frequency of the existence of a decidua in the uterus in cases of extra-uterine pregnancy is a "*vexata quæstio,*" its absence in this case is worthy of being noted.*

CASE OF FIBROUS TUMOR OF THE UTERUS.

(*Reported by Sreenath Sen, Clinical Clerk in the College Female Hospital.*)

Anne D'Rozario, æt. 46, admitted May 20th, 1845. Has a large inelastic tumor occupying the entire lower half of the abdomen ; it is hard, heavy, smooth, moveable, and not inclining to either side ; there is no pain on pressure.

On examination per vaginam, the uterine tumor is felt filling the pelvic cavity, and it is situated in the posterior wall of the body, and the cervix uteri. The os uteri is obliterated by firm adhesion of the lips. Several bands of recent soft adhesion pass from the cervix to the walls of the vagina which can be detached by the finger.

India Journal of Medical and Physical Science.

Frictions with Iodine ointment over the abdomen, aperient pills with Pil. Hydrarg. every night.

There is a thin purulent discharge, but no ulcers are to be felt; bowels regular; health pretty good. States that she has borne several children, and that the tumor has not been more than one year in forming.

June 20th.
R. Ferri Iodini gr. ij. three times a day. Cont. frictions.

The tumor seems to have considerably diminished in size, but the general health has been giving way; a slight fluctuation is felt on the anterior and inferior part of the tumor, which cannot be the bladder as the fluctuation remains after drawing off the urine.

July 2d.
Lotion of Zinci Sulph. and Chloridæ Calcis. Syringe the vagina twice daily.

Salivated most profusely; health no ways improved; a copious fœtid purulent discharge from the vagina, the fluctuation can no longer be felt, size and shape of the tumor remain the same.

Discontinue the Iodine and give opiates freely to soothe the system.

12th.

Salivation has been somewhat checked, emaciation extreme, the patient is supported by quinine and opium, broth and wine.

18th.

Died.

Autopsy.

The abdominal viscera were all healthy, the peritoneal surfaces free and pale. The uterus presented externally the appearance of pregnancy of the 8th or 9th month: was perfectly smooth, regular and pale, the fallopian tubes excepted, which were slightly injected, but not inflamed; the ovaries were shrivelled to mere shreds exhibiting nothing of their original structure. The bladder was found empty but of enormous size, attached to the front of the tumor throughout, consequently not shrunk up as in the healthy empty state.

On removing the uterus it was found to weigh upwards of four pounds. The os tincæ was firmly glued by old cicatrices, but numerous membranous bands passed from the os and cervix to the walls of the vagina. At the top of one of the chambers formed in this way was found a round ball of lint, containing some grains of coarse gravel, this was imbedded in a deep dark ulcer of the cervix, from which the offensive purulent discharge flowed, but was limited in shape and extent to the form of the foreign irritating body, and bore nothing of a malignant or spreading character. The uterus itself, on being divided vertically from its fundus to the os tincæ was found to be a solid cartilaginous mass of a cellular structure, the cells containing a clear hard gelatinous deposit. In one part only, near the fundus, was discovered a small abscess containing either inspissated pus or soft tubercles. There were no transverse bands nor any scirrhous nodules such as belong to cancer. The cavity of the uterus was entirely obliterated by the adventitious expansion of its walls, so that in fact the uterus had been converted into one solid tumor.* (See No. 934 of the preparations of female generative organs.)

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* This is quite true of the anterior part of the tumour and uterus—for anteriorly they are confounded together;—but posteriorly the wall of the uterus is distinctly free, from the fundus to the vagina. For an inch or two above the os uteri the tumour has only slight adhesions to the walls.

Remarks by Dr. Stewart.

I have not many remarks to make on this case, for I have not met with any one like it in India, nor do I suppose that many of my brethren have enjoyed opportunities of observing such diseases in natives either during life or post mortem :—The interest attaching to the case in the latter respect is therefore great, and the lesson it teaches important, as bearing out the able descriptions of similar diseases to be found in the writings of Lee, Ashwell, Churchill, Carswell, Burns and others in Europe. The structure, insensibility, and above all the benignant character of the ulcer established in the diseased cervix, by the injudicious interference no doubt of some unprincipled quack, clearly rescue the disease from the charge of malignancy, while the only startling part of the history, viz. its extremely rapid growth, is not worthy of much confidence.

The apparent diminution in its size which took place under the use of iodine frictions, and the ioduret of iron, though at one time encouraging, was proved to be merely the result of general absorption of the adipose cellular structures of the body, and the obscurity caused by the fluctuation perceived on the front of the tumor was also cleared up by the appearances found in the bladder. That viscus had been no doubt paralysed in some degree by frequent long continued distention, and in this situation adhered to the expanding uterus.

The incurability of such cases is generally acknowledged ; yet to the pathological student they are full of interest ; and the investigations of Dr. Ashwell encourage the hope that when of a benign character, and in an early stage, much relief, if not a cure may occasionally be obtained.*

IMPEDED LABOR, FOLLOWED BY PUERPERAL FEVER, CRURAL PHLEBITIS, ETC.†

(*Abstracted from the Hospital Records, by A. Thomas, Medical Student.*)

June 12th.—Beebee Jaun, a young Hindu woman, of strong and robust habit of body was admitted, as she supposed, in the ninth month of her first pregnancy, expecting her confinement daily. This did not take place, however, till the 14th of July. Labor commenced at 2 A. M., at first gently, but before noon the pain had become very severe and almost incessant, the patient extremely restless and noisy, screaming loudly and continually ; At 4 P. M., an examination showed the os uteri to be rigid, and but little dilated, the vaginal passages hot and dry, the presentation was ascertained to be natural, she was bled to 16 ounces in the left arm, and as this produced no good effect she was again bled one hour later to the extent of 20 ounces *ad deliqium*, and had then a draught containing 60 drops of laudanum, and one grain of tartar emetic.

Towards 9 P. M., the membranes gave way, the os uteri being fully dilated ; the uterine efforts were if possible re-doubled, and the patient appeared perfectly delirious, the fœtal head advanced however, and delivery was completed at 4 A. M. of the 15th, exactly 28 hours from its commencement ; the placenta came away in half an hour by the natural efforts.

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* It is difficult now to say whether or not this tumour were ever pediculated, in No. 866, p. 286—there could have been no difficulty in applying a ligature.

† For these cases I am indebted also to the India Journal of Medical and Physical Science.

During the following day she slept a little, but at short intervals, talked incessantly and wildly, had a hurried small pulse, and general pains in all her body. Her head was shaved at noon, and 30 leeches applied behind the ears; a brisk purgative of Jalap and Scammony was administered, and after its operation the following mixture was prescribed to be used all night.*

On the 16th she was found a little more tranquil but had been delirious during the night, and strayed through the ward in quest of her child. The lochial discharge was checked, there was great pain and tenderness of the hypochondrium, and a hard swelling was observed on the right side of the uterus as large as an orange, which could not be touched without causing great pain. The external genitals were greatly swollen but were not lacerated in any part; 24 leeches were applied to the iliac tumor, a warm poultice over the abdomen and vulva: cold lotions to the head and one "fever powder"† was directed to be given every hour, a lavement of warm congee water and soap every four hours, and the bladder to be regularly emptied.

* *R.* Tart. Antimon. gr. iv.
Liquor, Opii ʒj.
Sp. Ether. Nitros. ʒiv.
Aqua Camphor. ℥x ij.
A table spoonful every hour.

† *R.* Calomel gr. x.
Antimon. Tartar gr. j.
Cretæ ppt. ℈j.
M. and divide in Ch. x.

On the 17th, delirium had subsided into mania, the countenance was pale and extremely anxious, indicative of suppressed pain, the pulse 120; tongue dry and white, a copious offensive purulent discharge from the genitals, the iliac tumor somewhat smaller and less painful, 30 leeches were applied to the temples, a blister to the nape of the neck, a purge of castor-oil with two drachms of turpentine was administered, and directed to be repeated every six hours, the fever powders to be continued every three hours; fomentations and poultices as yesterday.

On the 18th, extensive ulcerations of the labia and vagina and offensive discharge; the head symptoms were more moderate, but recurred at intervals for several days with violence, the pain and swelling in the ovarian region had nearly disappeared. The gums were swollen and slightly salivated. The calomel was omitted—a plaster of Blue ointment and Extract of Belladona applied to the ovarian tumor, purgatives of Ol. Ricini, &c., were administered, and saline effervescing draughts. Some chicken broth was allowed and a little port wine with her arrow-root, an anodyne draught was ordered every night.

On the 20th she complained of pain in the left shoulder and arm, which disappeared under fomentations, and shifted to the right shoulder. It was then observed that the wounds in both arms, where venesection had been performed, were suppurating: but no inflammation of the veins could be traced. The right shoulder being extremely painful 12 leeches were applied over the course of the vein, and warm fomentations afterwards, by which means and proper emollient dressings to the wounds, the swelling and pain, &c., subsided and disappeared in the course of the following week. The following medicines were ordered.*

R. Magnes. Sulph. ʒss.
Quininæ Sulph. gr. ij.

* Acid Sulph. dil. gr. xx.
Infus. Chirytæ ℥ij.
Draught three time as day.
One blue pill every night, with opium.

On the 27th, though sitting up and making no complaint of pain in any part of the abdomen, she was still very low, and typhoid symptoms prevailed. The tongue was dry and brown in the centre, with pale milky edges, the pulse extremely rapid and weak ; the skin cold and clammy, the bowels loose, and the alvine discharges offensive ; the vaginal passages were of a dark sloughing character and the ulcers on the labia white and apthous.

On the 30th some swelling and œdema were observed of the right ancle, and the same day she complained of violent cramps in the calf and afterwards of acute pain in the ham. Next day the leg bore the tumid glossy inelastic feel and appearance of phlegmasia dolens, and in the course of the day following the whole limb, from the groin to the toes, was swollen to double its natural size. No pain was (said to be) felt on pressure over the femoral vein, nor in the iliac fossa, but the thigh was leeched and fomented immediately on the appearance of the above characteristic symptom, and a blister applied to the right iliac region. Opiates were administered freely, with wine, ammonia, chlorine, &c. but without any benefit, and she died on the 3rd of August, 1845.

Autopsy.

The body was examined in the lecture-room, and the following appearances were observed :—*Thorax*, lungs free, crepitant, and of natural colour, heart healthy. *Abdomen*, general appearance of the peritoneal surfaces healthy, bowels pale and flatulent, liver healthy, spleen enlarged and soft, kidneys of ordinary size and appearance, their calyces full of thin pus, no ulceration or abscess discoverable in them. The internal tunic of the *vena cava ascendens* was of a bright scarlet colour, the vein itself thickened so as to have the feel of an artery and distended, as if with wax injection, by firm red coagula : at its bifurcation into the common *iliacs* was found a dense plug of adhesive lymph, in long dense fibres intermixed with bloody streaks, and drops of free pus, with difficulty could this substance be torn from the sides of the vessel. The same appearances were found in the *medio-sacral* vein, and all the veins of the pelvis ; and were traced throughout the whole course of the *femoral* and *salphæna* veins of the right side. The inflammation of the inner coat being always greatest in the situation of the valves. The *uterus* had returned to the usual size at the period after labor, and was pale when cut through. The lining membrane, however, was of a dark brown hue and velvety softness, and covered with a mucus. Both ovaries were completely disorganized and converted into a pulpy purulent mass. The right *fallopian tube*, slightly inflamed and thickened, was distended with pus, but the fimbriated extremities were free and natural.

The right shoulder joint contained a large quantity of thin purulent fluid. Both brachial veins were slightly inflamed and contained loose bloody coagula. The measurements of the pelvis after removing the soft parts were as follows : conjugate diameter 4⅓ inches ; oblique and transverse diameters 4½ inches ; at the outlet the long diameter, (from coccyx to pubic arch) was not more than 3⅓ inches, the transverse diameter four inches.

Remarks by Dr. Stewart (Professor of Midwifry,) Medical College.

Every step in the history of this interesting case is suggestive of comment, but however instructive to my pupils, I would only here beg to remark upon the unusual occurrence of such violent cephalic symptoms during the *parturient* process, even among English residents in India. It is true that the patient in this case, though a Hindu, was a very young person, of short stature and of well developed muscular frame ; her figure might have served a statuary to model from, being throughout as firm as marble, and perfectly symmetrical. Yet I was not prepared to find the fibre so unyielding during *parturition*, and from the early access of noisy delirious symptoms, I rather apprehended convulsions, and used the most active measures immediately to obviate this very imminent risk.

The second remark I may make, is one of self-condemnation for not applying the forceps. At my first examination I became aware of a certain degree of prominence of the coccyx and pointed it out to the pupils, but I have never known this to greatly retard an otherwise natural labor, as the joint is a flexible one, though in old subjects it is frequently anchylosed, and sometimes snaps during labor.

Besides the head at no time in this case became *impacted*, and my regret at not using instruments soon after the membranes gave way, arises not from a belief that the omission was *wrong*, but because I now think that a speedy delivery might have saved her from several of those causes, which combined during the continuance of a difficult labor, to endanger the state of the brain, and subsequently in all probability influenced the course of events.

A third remark may occur to the reader : viz. the singular metastasis of *phlegmasia* from shoulder to shoulder and then to the ancle. The deposit of pus in the cavities of the shoulder joint, and the pelvis of the kidneys, the appearance of globules of pus in the iliac veins, &c., are all interesting circumstances on which to reflect. Opportunities of such post-mortem inspection are rare in India. A most erroneous opinion prevails that such cases never occur (here.)

ABORTION PRODUCED BY VIOLENCE INDUCING ACUTE PERITONITIS AND DEATH.

(*Reported by S. M. Shircore, Medical Student.*)

Shama, a Hindoo woman, about the age of 30, was brought into Hospital by the Police, on the night of the 4th of August, in a state of great exhaustion, nearly pulseless, with a cold clammy skin, contracted features, and all the indications of approaching dissolution. Stated that she had a miscarriage six or eight days previously, and was at the time between four or five months advanced in her pregnancy. She distinctly denied having received any injury whatever sufficient to cause abortion, and alleged that this occurred spontaneously, and she could not account for it, having had children before at the full time :—There was great tenderness all over the abdomen, which was swollen and tympanitic, she shrunk from the slightest pressure. In her exhausted state no active treatment could be adopted, a large warm epithem of flannel, tightly wrung out of hot water, was applied over the abdomen, and she had some camphor mixture with ammonia and laudanum given to her at intervals. She sank, however and died in the course of the following morning.

Autopsy.

The post-mortem examination was conducted in the lecture-room. On opening the *abdomen,* a large quantity of thin milky fluid mixed with flakes of free lymph was discharged, and the whole of the viscera were found agglutinated together by extensive peritoneal adhesions. The great and lesser omentum, the intestines, both the kidneys, the spleen, and a portion of the liver, were adhering together, and appeared as if one mass. On proceeding a little further with the examination, an abscess was found in the left lumbar region over the psoas muscle, within which was lodged a pointed thin slip of bamboo about six inches in length. On the discovery of this the examination was made to find the passage by which the foreign body had found its way into such a situation, it being known that a very general practice prevails among the natives of this country to produce abortion by introducing some foreign aud irritating body through the vagina into the uterus.* For the purpose, therefore, of tracing its course, a ligature was applied to the rectum about six inches from the anus, the rectum was then divided, and the uterus, together with the whole of the pelvic viscera was removed. But the uterus presented no sign of inflammation or disease whatever externally ; it was perfectly free and natural in its size ; to its fundus, however, in front the lower edge of the great omentum was firmly adherent. On laying open the vagina its internal structure was found perfectly natural and free from signs of inflammation. The uterus was then laid open and carefully examined, the os tincæ appeared in a gangrenous state, but presented no trace of any laceration or ulceration, the internal surface of the body of the uterus did not present any evident mark of recent inflammation, but was lined with a dark grumous thin mucus, and a few spots of ecchymosis were seen scattered about, but no opening whatever was found through which the bamboo could have been thrust, nor was there the slightest mark of recent cicatrization. The bladder and the urethra were next examined, and were found perfectly healthy. The portion of the rectum removed from the pelvis was next opened and examined, nothing could be seen there ; there was but a very slight degree of inflammation, but no opening nor any laceration. On examining the portion of bowel, however, just above its division for some inches, and on washing the parts, a large ragged ulcer was found situated about three inches higher than the point of division and at least nine from the anal orifice. The opening was large enough for the passage of a piece of stick three times the thickness of the one found in the abscess, and though granulating it communicated directly with the cavity of the abscess. There remained no doubt that the stick had been introduced by the anus into the rectum, and that it had been thrust forward through the coats of the bowel into the situation it occupied ; the violence necessary for this, as well as the continued presence of this substance inducing acute peritonitis, and causing death.

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* See another fatal case p. 323. Both these cases occurred since the remarks was written at p. 280 and it is gratifying to observe that now the examinations P. M. at the female Hospital are recorded with great care.

The right ovary on being opened was found to contain a corpus luteum of the size nearly of a hazel nut, containing a dark brown bloody coagulum in its cavity. The left ovary presented a well-formed corpus luteum of about the size of a small pea perfectly solid, and of a bright yellow color with distinct characteristic lobular structure, its cavity obliterated.

Remarks by Dr. D. Stewart, (Professor of Midwifry,) Medical College.

This is a melancholy example of the fatal consequences of the ignorant and wicked attempts, which I fear are extremely common though unsuspected to produce miscarriages, among the natives of India. The practice alluded to by Mr. Thomas of effecting this by penetrating into the womb itself is of daily occurrence, but this is the first time I have known it attempted by piercing the rectum, a procedure fraught with so much greater risk of life. It is matter of deep regret that the legislature of England does not provide for the due punishment of fœticide unless the pregnant woman can be proved to have " quickened."

TEDIOUS LABOR—DELIVERY BY THE FORCEPS.

(*Reported by Hurrinauth Mitter, House Surgeon, Medical College.*)

Mrs. B., an European woman, æt. 30 ; was admitted August 20th in the evening, labor having commenced. This was her first confinement. She had an unhealthy scrofulous appearance, indicated by sore eyes (one of which was affected with glauacoma,) by swollen cervical glands, and the peculiar pale skin and flabby muscles, but she declared herself in good health.

August 21st.—At 5 A. M., pains were frequent and tolerably effective, the os uteri felt thin and patulous, the vaginal passages copiously lubricated. The labor advanced but tediously during the day and the membranes did not give way until noon of the 22nd. Soon after which the pains entirely subsided, and notwithstanding the administration of warm nourishment and two doses of ergot of rye, she became quite exhausted and seemed sinking into a state of collapse. At 5 P. M., the Professor applied the forceps without any difficulty and the labor was completed in a few minutes. She had several small doses of laudanum, and a little warm wine during the night ;—both mother and child are doing very well at the present time, the 8th of September, 1845.

PROTRACTED LABOR—DELIVERY BY THE FORCEPS.

(*Reported by Hurrinath Mitter, House Surgeon, Medical College.*)

August 30th.—Coroona, a Hindu woman, æt. 20 ; admitted at 2 P. M. this afternoon for the delivery of her first child ; her husband, who accompanied her, states that she has been four days in labor, and that the waters have been discharged last evening. On examination I found the presentation natural, the passages moist and free from painful swelling, the head fairly in the pelvis, and no distortion of any sort impeding the labor : the pains were, however, extremely feeble and partial, and the patient much exhausted though a stout and robust looking woman. One drachm of laudanum was immediately given on admission with the view of procuring rest, and allowing the uterine efforts to be resumed afterwards with greater effect, this was repeated after half an hour but without any benefit.

At 6 P. M. Dr. Stewart delivered by the forceps. The child, a stout female, was for nearly 20 minutes in a state of asphyxia, the scalp near the vertex over the protuberance of the left parietal bone presented an enormous tumor ; the countenance was perfectly livid, and the whole body of a blue tint. Two or three drachms of blood were allowed to flow from the funis, before tying it ; ammoniacal vapors were applied to the fauces, frictions to the chest and abdomen ; but the most powerful stimulant proved to be the introduction of the professor's little finger into the child's rectum, previously dipped in eau-de-cologne. Both mother and child have gone on till the present time without a single bad symptom.

(*Remarks by Dr. D. Stewart.*)

The two last cases furnish excellent illustrations of the legitimate use of the forceps. In the former one, owing to the feeble constitution of the patient, and the consequently extreme exhaustion produced by a not very protracted labor, as well as the failure of ordinary and specific stimulants to rouse the uterus into efficient action, there could be no question as to the expediency of using instruments especially as the head was quite low down, and both ears could easily be felt. In the second case, on account of the extreme tumefaction of the scalp, neither ear could be felt, but the position of the head was readily ascertained by tracing the course of the sagittal suture and posterior fontanelle; one blade having been easily applied, and thus furnishing of itself a safe and sure guide for the direction and application of the other, no great difficulty was experienced in completing the introduction of the instrument. It was found, however, that the blades had not been laid on *exactly* in the axis of the child's head, a circumstance which I attribute, as well as the tediousness of the labor, to the somewhat angular presentation of the vertex. This was demonstrated after the birth by the situation of the large ecchymosed tumor of the scalp produced by the constriction of the os uteri over the left angle of the head while the right side was perfectly smooth.

I suspect that this slight malposition of the head in the latter stage of tedious labors is a much more frequent cause of the continued delay than is commonly supposed. In the present case this was probably caused by a certain degree of projection of the spinous process of the right ischium which a careful examination of the cavity after the completion of the labor very plainly discovered.

1494. DEATH FROM CRIMINAL ABORTION. (*by lal chitra stick*)

By Dwárkánáuth Dás Basu. M. R. C. S.

17th March 1847.—A woman came into the Female Hospital with Peritonitis. Eyes watery, pulse sharp and quick, tongue foul, bowels confined, great tenderness on pressing the abdomen, which was distended and tympanitic, restlessness great. Twelve leeches and fomentations were ordered—together with clysters of castor oil and turpentine. Calomel gr. xx. and Dover's powder gr. x. to be repeated every four hours. The person died in the Hospital a few hours after. *Post Mortem,* Omentum was found to be thickened and adherent to the intestines, with a good deal of redness, very putrid fluid effused, intestines were inflamed, liver and spleen natural. In the uterus this stick a was found as seen in the preparation. Uterus is in a state of ulceration from contact of foreign body. Vagina inflamed and ulcerated and gave out a fœtid odour.

The peritonitis was said to have come on four days previously to her admission in the Hospital.

No. 1025. DEATH FROM CRIMINAL ABORTION.

By Dr. Greene.

I send you an uterus with the placenta taken from a poor native woman who died last night from uterine hæmorrhage, with which the fœtus must have been expelled. The woman is said to have been 3 months in the family way. The placenta (as I suppose) was found lying in the vagina, together with large coagula of dark blood. I could discover no organized or shaped. mass amongst the coagula.

I have divided one ovarium and found a few vesicles only, they contained a thin liquid. The woman was a widow. Miscarriage in all probability produced by foul means. The os uteri was patulous.

Howrah, January 15th 1848

CRANIOTOMY DEATH OF FŒTUS FROM IMPACTION.

By Dwárkánáuth Dás Basu. M. R. C. S.

A young native woman had labour pains for three days before I was called in. Her age is about 16 years, she is robust and healthy.

Native nurses have been meddling much with passages before my seeing her. When I saw her she was painless—bowels were moved by enema—urine drawn by catheterism—pulse little excited—she was feverish.

The head of the child was large and firmly impacted. The pelvis of the mother small from not being fully developed, on account of her age being less than the age in which the bones are fully formed or developed.

The child was dead, and was found to be so by the stethoscope, and then the head was perforated, and its contents removed, and then the child was removed. The cuticle of the child peeled off here and there.

There was fœtid odour with the discharge—placenta was partially adherent to the uterus, and was detached. After removal of the placenta the uterus remained uncontracted ; hand was introduced into the cavity of the uterus to induce the uterus to act, and firm pressure was made through the parietes of the abdomen on the uterus, and then the contraction of the uterus was secured by compresses and bandage.

See No. 2009. INVERSION OF THE UTERUS.

By Dwárkánáuth Dás Basu. M. R. C. S.

A native woman was in labor for twelve days; on the thirteenth day she was delivered by the forceps with difficulty. The child was dead and putrid. The placenta was firmly adherents hand was introduced to detach the placenta from the uterus. In one of the acts of bringing out the detached portions of the placenta, the uterus was brought perfectly out of the vaginal opening and left there, not knowing that it was the inverted uterus. I was applied for in this case. I saw the uterus inverted and perfectly hanging out of the vaginal passage. I reduced the inversion with great ease on account of the uterus having lost all contractile powers. Both during and prior to the reduction of the uterus the woman was sinking fast, stimulants did not do any good.

She died from exhaustion shortly afterwards. There were neither internal or external hœmorrhage. The womb uncontracted.

DR. STEWART'S STATISTICS OF THE FEMALE HOSPITAL.*

The Midwifery Ward was opened in January 1841.

" Since that time the number of women admitted for delivery has been 244, exhibiting an average of 39 cases per annum.

Of the above 244 cases, the following Table shows the classification of Labors :

Natural.	Premature.	Tedious.	Laborious.	Preternatural.	Complicated.	Twins.
171	31	7	14	12	6	3

The record of the children's " sex" gives 89 males to 80 females born alive.

In the classified table of Labors, the term " Natural" labor has been used in a somewhat wider sense than authorized by Denman, since a majority of the cases actually exceeded 24 hours in duration, but were otherwise easy and natural in their progress. Of those of this class delivered in Hospital in the regular course, having been admitted some days or weeks previously, it is gratifying to state that not one died from puerperal fever of any sort, although several died soon after delivery from the effects of pre-existing disease.

Of the cases set down as " Premature " many were in fact abortions occuring at an early stage of pregnancy, either in consequence of accident, or disease, or design. Many if not all of these cases were attended with violent and dangerous symptoms, and the lessons derived from such examples have been of great value and importance to the pupils.

In the class of " Difficult" labors, including tedious and laborious there will be found a very remarkable disproportion as regards number, and I regret to say a very lamentable want of success in our instrumental practice if compared with other Institutions in Europe. Yet to account for this it may be sufficient to mention, that all the cases of difficult labor treated in Hospital, with but few exceptions, were brought into the wards during parturition and at an advanced stage thereof, and often from a distance either by the Police or the despairing relatives of the patients, as a last chance of life, after being subjected for hours, perhaps days, to the meddlesome and unskilful handling of ignorant native midwives, and when but little hope of success attended any treatment.

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* Quoted from Annual Report of Calcutta Med. College for 1846—1847.

The following is a brief detail of the symptoms, treatment and termination of each of these cases as they occurred.

" Case 1. *Tedious*—powerless, from long duration of labour, (upwards of three days) the forceps was used. Both mother and child recovered.

Case 2. Under exactly similar circumstances, the forceps was applied. Mother died.

Case 3. *Laborious*—from distortion of pelvis. Head long arrested in the cavity, forceps used. Mother recovered.

Case 4. *Tedious*—from inefficient and partial uterine action, five days in labor, roughly handled, passages dry and inflamed, forceps used. Died next day.

Case 5. Had been 36 hours in labor before admission, incipient inflammation of os uteri and passages. V. S. and Solution Antim. Tart. employed ; subsequently the forceps. Mother died.

Case 6. *Laborious*—from inefficient uterine action after two days in labor and most meddlesome handling, forceps used. Mother died.

Case 7. *Tedious*—from great exhaustion and atony of the womb, 48 hours in labor, forceps used. Died.

Case 8. *Laborious*—from irregular action, opiates, afterwards the forceps. Recovered.

Case 9. Several days in labor, passages hot, dry, and inflamed from rough handling, opiates and tartar emetic solution, forceps used. Died.

Case 10. *Laborious*—from pressure of an enormous hydrocephalic head for four or five days, perforated and extracted by crotchet. Recovered.

Case. 11. *Laborious*—from size of child's head in a small pelvis, forceps used. Died.

Case. 12. *Laborious*—Head retained in utero, the body having been dragged away by the midwife before admission, great exhaustion and putrid discharge, head extracted by crotchet. Died.

Case 13. *Tedious*—exhaustion from seven days labor, forceps used Died.

Case 14 Rigid os and perineum. V. S. and Solution Antim. Tart. f hours, afterwards forceps used. Died.

Case 15. *Tedious*—from rigidity of passages and irregularity of uterine action. V. S. Solution Antim. Tart. and Laudanum at first, afterwar Ergot of Rye. Child and mother saved.

Case 16. *Tedious*—from want of power in a feeble subject, for used. Child and mother recovered.

Case 17. *Tedious*—from similar causes, in a better constitution, used. Recovered.

Case 18. *Tedious*—from exhaustion by previous illness, want misery. Delivery completed at the end of 40 hours naturally, but m died in a few hours after.

Case 19. Said to have been 12 days in labor. Uterine actio suspended, head resting on the pereneum ; delivered by the forceps. died one hour after from exhaustion. On autopsy uterus found to hous and perfectly powerless."

CUSTOMS OF PUERPERAL HINDOO WOMEN.

The following evidence from the Fever Hospital Report 1839, explains the very frequent occurrence of metritis and peritonitis after delivery.

"In the evidence of Modoosoodun Goopto Koobeeruttun, besides the necessity that exists for affording to the female part of the population Medical assistance in the diseases to which they are subject in common with the men, the lamentable treatment of lying-in women, the loss of life thereby occasioned, and the injury inflicted upon the constitution of the infant, are strikingly represented.

"The Hindoo women," he says, "are not so subject to any of the diseases I have mentioned as the males. They are subject, though not so frequently as the men, to remittent and intermittent fevers, and all their consequences; to diarrhœa, dysentery, and dyspepsia—not very subject to rheumatism. But they are very subject to hysteria, and irregularities of the menses."

"They suffer much pain in parturition, chiefly from the youth of the mother; but it is very rarely attended with danger to the mother, unless there be some accident, as a premature or a cross birth, or unless fever ensues after the birth. In two, three, four or five days the mother *generally gets fever, that is fatal without proper treatment,* attended with pain in the belly, immoderate sweatings, headache and giddiness, and inflammatory fever. In such cases I am very often called. These symptoms could generally be prevented, if the woman was attended from the beginning by a skilful person. The midwives who attend them are perfectly ignorant of their profession. The danger that occurs is partly from their ignorance, and partly from the Native customs."

"The woman after delivery is placed in a small damp room very ill ventilated, with one small door only—no window or opening in the nature of a chimney. The door is always closed. The room is in a corner of the compound. From the moment after delivery wood fires are kindled in different parts of the room, sometimes two, sometimes three. The smoke is allowed to find its way through the walls and roof. The room is kept at a great heat. I think it cannot be below ninety degrees of Fahrenheit. [Mr. Prosonocoomar Tagore, one of the members of the Committee, remarked that it was a great deal more.] The room is a temporary hut of mats and bamboo, thatched with straw or grass, in a corner of the compound, detached from the house, (the woman during such period being considered impure,) and generally kept for the purpose of the women of the family being delivered in it. This is the case with wealthy Natives who have substantial houses for dwelling in, except a few, who do not observe the custom."

"During the first three days, the woman is given a powder made of stimulating spices, as black pepper, long pepper, and dry ginger—after three days she gets the same ingredients made into a paste with hot water, and boiled down. They always take these things as an invariable custom, whatever their state may be, and without consulting any Medical man, Native or other, although in many cases it is extremely prejudicial, and, if there is any tendency to fever, dangerous. Medical men are never called in, unless the woman is apparently in danger. Three or four women out of twenty die of fever and tetanus produced by this treatment, in six or eight or ten days after parturition. The prejudices in favour of these customs are so great, that a Medical man would find it very difficult to prevent their being followed. I think these prejudices are as strong as ever among the bulk of the people, but there are some families which are exceptions, though these are very few. My observations relate to Hindoos only. If we had a sufficient number of well qualified female Hindoo midwives, whose charges were very moderate, I think they might accomplish a great deal by good advice. If they were seen to succeed to the extent of reducing the number of deaths from four or five out of twenty, to one or two, there is no doubt that the Natives would apply to them for advice, and would follow it. From my experience, and what I know of the Natives, I have no doubt at all of this."

"The customs I have mentioned are not connected in the opinions of the people with any religious precepts or observances, except the having an apartment for women in child-birth detached from the house. It might be as airy and well built and spacious and cool, as might be desired. Religious opinions have nothing to do with any of these matters. But all women except Brahminee, remain impure for a month—Brahminee women for twenty one days." [Your Committee are informed by one of their members, Mr. Prosonocoomar Tagore, that the Brahminee women remain impure for eleven days only]

"If an Hospital with a Lying-in Ward were established, with proper Hindoo midwives and attendants, a great number of married women of the inferior castes would be happy to avail themselves of it, and many lives would be saved by this means. Such an Hospital, united to a class in which Native Hindoo women might be instructed by an European Professor of Midwifery, well acquainted with the vernacular language, would be attended with extensively beneficial effects. The number of women taking advantage of the Institution would be such as to afford employment for a great number of midwives."

"Such women, so instructed and employed, would readily find employment at a moderate charge among Hindoo women of all castes and ranks, at their own houses, by which I am well assured many of their lives and those of their children would be saved. These midwives would remain in attendance upon the lying-in woman, and would see that what the Doctor prescribed was administered, and would keep up the courage of the woman, and prevent to a great degree the injurious treatment and practices to which they are now subjected. Neither the Hindoo women nor their families have at present any objection to their being attended by an European Doctor, except on the score of expense. But the misfortune is, that there is no security that what he prescribes is administered. Educated Hindoo midwives would remove this difficulty.'

It is well to contrast what was *talked of* in 1838 with what has been done in 1848. The cases given in detail pp. 320, 326, as well as the difficult labors treated in the following list, shew the immence benefit conferred by the Midwifery Hospital of the College.

DIFFICULT CASES OF MIDWIFERY. (*India Med. Rev. Jan.* 1848)

" The following list of difficult cases of midwifery, is drawn up, with a view of breaking down the common, but erroneous idea, which has nevertheless found circulation in numerous works in India ; that native women, of this country, are exempt from such accidents and chances, as their sisterhood in colder climates, and in Europe particularly, are subject to. Dr. Duncan Stewart vouches to having seen most of these cases, and assisted Prosonocomar Mitter in the medical management of them."

"One cold morning in January 1842, shortly after H. M.'s 9th Regiment had marched for Cubul, there was brought into the European Infantry Hospital of the Station where the sick and invalids were left behind, and of which we were in medical charge, a native woman, related to one of the Hospital Establishment. She had been brought 30 miles in a dooly slightly covered, with the arm and shoulders of a fœtus hanging out of her vagina, where it had been two days and two nights. The woman was young and strong, and her pulse pretty good. Pains still occurred at distant intervals, and she thought, with help, she should surely do well. The mortified arm of the fœtus was removed, and turning effected with remarkable ease, and the feet brought down ; the uterus appearing to help on the occasion in a surprising manner. The fœtus and placenta were expelled, the uterus contracted pretty well, and the woman seemed to be doing well, but sunk afterwards. At the time we remember we asked the old compounder if he had ever heard tell of such a case among the European Soldiers' wives in the Hospital, in the course of twenty years service. He could not remember one, but said, " Every now and then one of the sort happened in the villages about, BUT THEY ALL DIED." *India Med. Rev.*

A similar list has been published from another of our graduates (BABOO NOBIN CHUNDER GUPTOO,) they shew the value of the Instruction received and the great services which here also PROFESSOR GOODEVE conferred upon INDIA in founding the Hospital. He says " it had always been considered unnecessary hitherto to provide for any instruction in this branch of medicine, under the impression—subsequently proved to be very erroneous—that the peculiar prejudices of the native population with regard to their female relatives would render such instruction inoperative and valueless. This objection was however at last removed, and by the assistance of a liberal private subscription the present Female and Lying-in Hospital was formed ; our kind patron, Lord Auckland, again assisting to promote our wishes by appointing a Professorship of Midwifery, to which I had the honour of succeeding." " The Lying-in Hospital has become a model for such charities in India ; whilst we have daily proof of the utility of this addition to our College, as well in respect to the number of cases relieved in our wards, as in the constant demands upon our Students for assistance in cases of difficult and dangerous labour amongst the families of their countrymen." *Introductory Lecture, June* 1848. *By* PROFESSOR GOODEVE.

Cases of difficult labor in the practice of Prosonocomar Mitter, Graduate of the Medical College, in 1845-46-47.

Caste.	Age.	Previous number of children.	Cause of the difficulty.	Mode of delivery and treatment.	Result to mother and child.
Hindoo,	26	Three,	Enlargement of the head of the child,	Perforation of the head,	Mother recovered.
Ditto,	15	None,	Contracted pelvis,	Ditto,	Both died.
Ditto,	17	Ditto,	Rigidity of the Os Tincæ,	Venesection,	Mother recovered, child died.
Ditto,	17	Ditto,	Ditto,	Ditto,	Both recovered.
Ditto,	15	Ditto,	Debility,	Stimulating medicine,	Ditto.
Ditto,	14	Ditto,	Ditto,	Administration of the secale cornutum,	Ditto.
Ditto,	14	Ditto,	Ditto,	Ditto,	Both died.
Ditto,	14	Ditto,	Inefficient contraction of the uterus,	Injection of common salt with warm water,	Both recovered
Ditto,	18	Ditto,	Ditto,	Ditto,	Ditto.
Ditto,	17	One,	Ditto,	Administration of laudanum,	Ditto.
Ditto,	17	Ditto,	Ditto,	Ditto,	Ditto.
Ditto,	18	Ditto,	Ditto,	Ditto,	Ditto.
Mahomedan,	19	Two,	Ditto,	Administration of secale cornatum,	Ditto.
Hindoo,	20	One,	Ditto,	Ditto,	Mother recovered, child died.
Ditto,	22	Ditto,	Ditto,	Ditto,	Ditto.
Ditto,	21	None,	Ditto,	Ditto,	Both recovered.
Ditto,	22	Ditto,	Ditto,	Ditto,	Both died.
Ditto,	22	Ditto,	Ditto,	Ditto,	Ditto.
Ditto,	22	Ditto,	Ditto,	Ditto,	Ditto.
Ditto,	22	Ditto,	Ditto,	Ditto,	Ditto.
Ditto,	25	Three,	Debility,	Application of forceps	Both recovered.

Cases of dificult labor in 1845-46-47.—*Continued.*

Caste.	Age.	Previous children.	Cause of the difficulty.	Mode of delivery and treatment.	Result to mother and child.
Christian,	16	None, ..	Inefficient contraction of uterus, ...	Administration of secale cornutum, ...	Ditto,
Hindoo, ...	17	One,....	Ditto, ...	Ditto, ...	Ditto.
Ditto, ...	18	Two, ...	Ditto, ...	Ditto, ...	Ditto.
Hindoo, ...	18	None, ..	Rigidity of the Os Tincæ	Venesection, ...	Both recovered
Ditto, ...	22	Ditto, ..	Arm presentation, ..	Operation of turning, ...	Ditto.
Ditto, ...	14	Ditto, ..	Ditto, ...	Ditto, ...	Child died, mother recovered.
Ditto, ...	13	Ditto, ..	Debility, ...	Application of forceps, ...	Mother recovered, child died.
Ditto, ...	19	Two, ..	Inefficient contraction of the uterus, ..	Administration of secale cornutum, ...	Both recovered.
Ditto, ...	23	One, ..	Ditto, ...	Ditto, ...	Ditto.
Ditto, ...	24	Three, ..	Ditto, ...	Ditto, ...	Ditto.
Ditto, ...	25	One, ..	Ditto, ...	Ditto, ...	Ditto.
Ditto, ...	25	Ditto, ..	Ditto, ...	Ditto, ...	Ditto.
Ditto, ...	12	None, ..	Ditto, ...	Perforation of the head, ..	Both died
Christian ..	16	Ditto, ..	Feet presentation,	Application of forceps, ...	Mother recovered, child died.
Ditto, ...	17	Ditto, ..	Inefficient contraction of the uterus, ...	Administration of secale cornutum, ..	Both recovered.
Mahomedan..	16	Ditto, ..	Ditto, ...	Ditto, ...	Ditto.
Hindoo, ...	14	Ditto, ..	Ditto, ...	Ditto, .. .	Ditto.
Ditto, ...	15	Ditto, ..	Arm presentation, ..	Operation of turning, ..	Ditto.
Ditto, ...	15	Ditto, ..	Funis presentation, ..	Ditto, ...	Mother recovered, child died.
Ditto, ...	16	Ditto, ..	Retention of placenta	Administration of secale cornutum, ..	Both recovered.

Note.—This table of difficult cases of Midwifery may be considered apropos of Chloroform, in the midst of the accounts of which it is somewhat accidentally mixed. The same cases treated over again with Chloroform would probably shew different results.—**Editor**, *India Medical Review.*

Note. Many cases of painless delivery by this agent have since taken place in the Midwifery Hospital of the Medical College.—A. W.

END OF PART II.